

**International Standards
and Recommended Practices**



**Annex 1
to the Convention on
International Civil Aviation**

Personnel Licensing

This edition incorporates all amendments adopted by the Council prior to 20 February 2001 and supersedes, on 1 November 2001, all previous editions of Annex 1.

For information regarding the applicability of the Standards and Recommended Practices, see Foreword.

**Ninth Edition
July 2001**

International Civil Aviation Organization

AMENDMENTS

The issue of amendments is announced regularly in the *ICAO Journal* and in the monthly *Supplement to the Catalogue of ICAO Publications and Audio-visual Training Aids*, which holders of this publication should consult. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

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FOREWORD

Historical Background

Standards and Recommended Practices for Personnel Licensing were first adopted by the Council on 14 April 1948 pursuant to the provisions of Article 37 of the Convention on International Civil Aviation (Chicago 1944) and designated as Annex 1 to the Convention. They became effective on 15 September 1948.

Table A shows the origin of subsequent amendments together with a list of the principal subjects involved and the dates on which the Annex and the amendments were adopted by the Council, when they became effective and when they became applicable.

Application of the PEL Standards

Annex 1 contains Standards and Recommended Practices adopted by the International Civil Aviation Organization as the minimum standards for personnel licensing.

The Annex is applicable to all applicants for and, on renewal, to all holders of the licences and ratings specified herein.

The Council has decided that, in principle, amendments affecting existing licensing specifications are applicable to all applicants for, and holders of, licences but, in considering their application to existing holders of licences, the assessment, if necessary, by re-examination of the knowledge, experience and proficiency of individual licence holders is left to the discretion of Contracting States.

Action by Contracting States

Notification of differences. The attention of Contracting States is drawn to the obligation imposed by Article 38 of the Convention by which Contracting States are required to notify the Organization of any differences between their national regulations and practices and the International Standards contained in this Annex and any amendments thereto. Contracting States are invited to extend such notification to any differences from the Recommended Practices contained in this Annex and any amendments, when the notification of such differences is important for the safety of air navigation. Further, Contracting States are invited to keep the Organization currently informed of any difference which may subsequently

occur, or of the withdrawal of any difference previously notified. A specific request for notification of differences will be sent to Contracting States immediately after the adoption of each amendment to this Annex.

Use of the Annex text in national regulations. The Council, on 13 April 1948, adopted a resolution inviting the attention of Contracting States to the desirability of using in their own national regulations, as far as practicable, the precise language of those ICAO Standards that are of a regulatory character and also of indicating departures from the Standards, including any additional national regulations that were important for the safety or regularity of air navigation. Wherever possible, the provisions of this Annex have been written in such a way as to facilitate incorporation, without major textual changes, into national legislation.

General Information

The expression “licence” used throughout this Annex has the same meaning as the expressions “certificate of competency and license”, “license or certificate” and “license” used in the Convention. Similarly the expression “flight crew member” has the same meaning as the expressions “member of the operating crew of an aircraft” and “operating personnel” used in the Convention while the expression “personnel other than flight crew members” includes the expression “mechanical personnel” used in the Convention.

Status of Annex Components

An Annex is made up of the following component parts, not all of which, however, are necessarily found in every Annex; they have the status indicated:

1.— *Material comprising the Annex proper:*

a) *Standards and Recommended Practices* adopted by the Council under the provisions of the Convention. They are defined as follows:

Standard: Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in

accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38.

Recommended Practice: Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention.

- b) *Appendices* comprising material grouped separately for convenience but forming part of the Standards and Recommended Practices adopted by the Council.
- c) *Definitions* of terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.
- d) *Tables* and *Figures* which add to or illustrate a Standard or Recommended Practice and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

It is to be noted that some Standards in this Annex incorporate, by reference, other specifications having the status of Recommended Practices. In such cases the text of the Recommended Practice becomes part of the Standard.

2.— *Material approved by the Council for publication in association with the Standards and Recommended Practices (SARPs):*

- a) *Forewords* comprising historical and explanatory material based on the action of the Council and including an explanation of the obligations of States with regard to the application of the Standards and Recommended Practices ensuing from the Convention and the Resolution of Adoption.
- b) *Introductions* comprising explanatory material introduced at the beginning of parts, chapters or sections of the Annex to assist in the understanding of the application of the text.

c) *Notes* included in the text, where appropriate, to give factual information or references bearing on the Standards or Recommended Practices in question, but not constituting part of the Standards or Recommended Practices.

d) *Attachments* comprising material supplementary to the Standards and Recommended Practices, or included as a guide to their application.

Selection of Language

This Annex has been adopted in six languages — English, Arabic, Chinese, French, Russian and Spanish. Each Contracting State is requested to select one of those texts for the purpose of national implementation and for other effects provided for in the Convention, either through direct use or through translation into its own language, and to notify the Organization accordingly.

Editorial Practices

The following practice has been adhered to in order to indicate at a glance the status of each statement: *Standards* have been printed in light face roman; *Recommended Practices* have been printed in light face italics, the status being indicated by the prefix **Recommendation**; *Notes* have been printed in light face italics, the status being indicated by the prefix *Note*.

It is to be noted that in the English text the following practice has been adhered to when writing the specifications: Standards employ the operative verb “shall” while Recommended Practices employ the operative verb “should”.

The units of measurement used in this document are in accordance with the International System of Units (SI) as specified in Annex 5 to the Convention on International Civil Aviation. Where Annex 5 permits the use of non-SI alternative units these are shown in parentheses following the basic units. Where two sets of units are quoted it must not be assumed that the pairs of values are equal and interchangeable. It may, however, be inferred that an equivalent level of safety is achieved when either set of units is used exclusively.

Any reference to a portion of this document which is identified by a number includes all subdivisions of that portion.

Table A. Amendments to Annex 1

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted Effective Applicable</i>
1st Edition	Second Session of the PEL Division; January 1947.	Licensing of flight crew members and of key personnel responsible for air navigation services.	14 April 1948 15 September 1948 1 May 1949
1 to 123 (2nd Edition)	Third Session of the PEL Division; March 1948.	Modifications to existing Standards.	22 March 1950 1 September 1950 1 October 1951
124 to 129	Third Session of the PEL Division; March 1948.	Modifications to existing Standards.	27 June 1950 1 November 1950 1 October 1951
130 to 151 (3rd Edition)	Third and Fourth Sessions of the PEL Division; March 1948, February 1952.	Modifications to existing Standards.	25 November 1952 1 April 1953 1 April 1955
152	Special Meeting on Hearing and Visual Requirement for Personnel Licensing; 1955.	Hearing and Visual Requirement for Personnel Licensing.	22 February 1956 1 July 1956 1 December 1956
153	Air Navigation Commission.	New requirement for electrocardiograms.	16 April 1957 1 September 1957 1 December 1957
154 (4th Edition)	Third Air Navigation Conference; 1956.	Amendment of SARPs.	13 June 1957 1 October 1957 1 December 1957
155 (5th Edition)	Recommendation from PEL/MED Meeting; May 1961.	Amendment of SARPs.	27 June 1962 1 November 1962 1 September 1963
156 (6th Edition)	Recommendations from PEL/TRG/MED Divisional Meeting; October–November 1970.	Amendment of SARPs.	11 December 1972 11 April 1973 2 January 1975 26 January 1978
157	Council.	Use of Russian language in personnel licences.	28 June 1976 28 October 1976 21 April 1977
158 (7th Edition)	Correspondence and Secretariat, 21st Assembly and Council.	Modifications to existing Standards for medical examiners. New SARPs for assessment of medical fitness. Replacement of Physical and Mental Requirements by Classes of Medical Assessment.	4 May 1982 4 September 1982 25 November 1982

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted Effective Applicable</i>
159 (8th Edition)	Second, Third and Fourth Meetings of the Personnel Licensing and Training (PELT) Panel; November 1983, April 1985, May 1986. Air Navigation Commission.	Amendment of SARPs dealing with the licensing of flight crew members. Deletion of the senior commercial pilot licence — aeroplane, the controlled VFR rating, the flight radio operator licence and the flight instructor rating for gliders and free balloons. The dividing line of 5 700 kg maximum take-off mass is replaced by a dividing line based on the crew complement required by certification. All helicopter provisions have the status of Standards. The requirements for the issue of a type rating for aircraft certificated for two-pilot operation are strengthened. The provisions for the issue of each licence and rating have been updated. Flight instruction requirements are established for the private, commercial, glider and free balloon pilot licences and for the instrument and flight instructor ratings.	28 March 1988 31 July 1988 16 November 1989
160	Air Navigation Commission.	Amendment of SARPs for air traffic controllers, aeronautical station operators and flight operations officers.	24 March 1993 26 July 1993 10 November 1994
161	Air Navigation Commission.	Amendment of SARPs for aircraft maintenance technicians/engineers/mechanics and Specifications for Personnel Licences.	10 March 1997 21 July 1997 5 November 1998
162	First, Second, Third and Fourth Meetings of the Prevention of Substance Abuse in the Workplace Study Group (PSAWSG); December 1993, August 1994, January 1995, May 1995. Air Navigation Commission.	Amendment of SARPs dealing with the use of psychoactive substances by aviation personnel.	25 February 1998 20 July 1998 5 November 1998
163 (9th Edition)	Flight Safety and Human Factors Study Group (FSHFSG); May 1995. Vision and Colour Perception Study Group (VCPSPG); June 1997 to May 1998. Air Navigation Commission.	Human Factors knowledge requirements; visual and colour perception requirements; the language used in personnel licences; deletion of the Attachment.	19 February 2001 16 July 2001 1 November 2001

INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

CHAPTER 1. DEFINITIONS AND GENERAL RULES CONCERNING LICENCES

1.1 Definitions

When the following terms are used in the Standards and Recommended Practices for Personnel Licensing, they have the following meanings:

Accredited medical conclusion. The conclusion reached by one or more medical experts acceptable to the Licensing Authority for the purposes of the case concerned, in consultation with flight operations or other experts as necessary.

Aeroplane. A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Aircraft avionics. A term designating any electronic device — including its electrical part — for use in an aircraft, including radio, automatic flight control and instrument systems.

Aircraft — category. Classification of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.

Aircraft certificated for single-pilot operation. A type of aircraft which the State of Registry has determined, during the certification process, can be operated safely with a minimum crew of one pilot.

Aircraft — type of. All aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

Approved maintenance organization. An organization approved by a Contracting State, in accordance with the requirements of Annex 6, Part I, Chapter 8 — Aeroplane Maintenance, to perform maintenance of aircraft or parts thereof and operating under supervision approved by that State.

Note.— Nothing in this definition is intended to preclude that the organization and its supervision be approved by more than one State.

Approved training. Training carried out under special curricula and supervision approved by a Contracting State.

Balloon. A non-power-driven lighter-than-air aircraft.

Note.— For the purposes of this Annex, this definition applies to free balloons.

Certify as airworthy (to). To certify that an aircraft or parts thereof comply with current airworthiness requirements after maintenance has been performed on the aircraft or parts thereof.

Co-pilot. A licensed pilot serving in any piloting capacity other than as pilot-in-command but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction.

Dual instruction time. Flight time during which a person is receiving flight instruction from a properly authorized pilot on board the aircraft.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

Flight plan. Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

Flight procedures trainer. See Synthetic flight trainer.

Flight simulator. See Synthetic flight trainer.

Flight time — aeroplanes. The total time from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.

Note. — Flight time as here defined is synonymous with the term “block to block” time or “chock to chock” time in

general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

Flight time — helicopters. The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

Glider. A non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Glider flight time. The total time occupied in flight, whether being towed or not, from the moment the glider first moves for the purpose of taking off until the moment it comes to rest at the end of the flight.

Helicopter. A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Instrument flight time. Time during which a pilot is piloting an aircraft solely by reference to instruments and without external reference points.

Instrument ground time. Time during which a pilot is practising, on the ground, simulated instrument flight in a synthetic flight trainer approved by the Licensing Authority.

Instrument time. Instrument flight time or instrument ground time.

Licensing Authority. The Authority designated by a Contracting State as responsible for the licensing of personnel.

Note.— In the provisions of this Annex, the Licensing Authority is deemed to have been given the following responsibilities by the Contracting State:

- a) *assessment of an applicant's qualifications to hold a licence or rating;*
- b) *issue and endorsement of licences and ratings;*
- c) *designation and authorization of approved persons;*
- d) *approval of training courses;*
- e) *approval of the use of synthetic flight trainers and authorization for their use in gaining the experience or in demonstrating the skill required for the issue of a licence or rating; and*

- f) *validation of licences issued by other Contracting States.*

Maintenance. Tasks required to ensure the continued airworthiness of an aircraft including any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification.

Medical Assessment. The evidence issued by a Contracting State that the licence holder meets specific requirements of medical fitness. It is issued following an evaluation by the Licensing Authority of the report submitted by the designated medical examiner who conducted the examination of the applicant for the licence.

Night. The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

Note.— Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon.

Pilot (to). To manipulate the flight controls of an aircraft during flight time.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Problematic use of substances. The use of one or more psychoactive substances by aviation personnel in a way that:

- a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
- b) causes or worsens an occupational, social, mental or physical problem or disorder.

Psychoactive substances. Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

Rated air traffic controller. An air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

Rating. An authorization entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.

Rendering (a licence) valid. The action taken by a Contracting State, as an alternative to issuing its own licence, in accepting a licence issued by any other Contracting State as the equivalent of its own licence.

Sign a maintenance release (to). To certify that maintenance work has been completed satisfactorily in accordance with

the applicable Standards of airworthiness, by issuing the maintenance release referred to in Annex 6.

Solo flight time. Flight time during which a student pilot is the sole occupant of an aircraft.

Synthetic flight trainer. Any one of the following three types of apparatus in which flight conditions are simulated on the ground:

A *flight simulator*, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

A *flight procedures trainer*, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

A *basic instrument flight trainer*, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

1.2 General rules concerning licences

Note 1.— Although the Convention on International Civil Aviation allocates to the State of Registry certain functions which that State is entitled to discharge, or obligated to discharge, as the case may be, the Assembly recognized, in Resolution A23-13, that the State of Registry may be unable to fulfil its responsibilities adequately in instances where aircraft are leased, chartered or interchanged — in particular without crew — by an operator of another State and that the Convention may not adequately specify the rights and obligations of the State of an operator in such instances until such time as Article 83 bis of the Convention enters into force. Accordingly, the Council urged that if, in the above-mentioned instances, the State of Registry finds itself unable to discharge adequately the functions allocated to it by the Convention, it delegate to the State of the Operator, subject to acceptance by the latter State, those functions of the State of Registry that can more adequately be discharged by the State of the Operator. While Article 83 bis of the Convention entered into force on 20 June 1997 in respect of Contracting States which have ratified the related Protocol (Doc 9318), the foregoing action will remain particularly relevant for those Contracting States which do not have treaty relations under Article 83 bis. It was understood that pending entry into force of Article 83 bis of the Convention, the foregoing action would only be a matter of practical convenience and would not affect either the provisions of the Chicago

Convention prescribing the duties of the State of Registry or any third State. However, as Article 83 bis of the Convention entered into force on 20 June 1997, such transfer agreements will have effect in respect of Contracting States which have ratified the related Protocol (Doc 9318) upon fulfilment of the conditions established in Article 83 bis.

Note 2.— International Standards and Recommended Practices are established for licensing the following personnel:

a) Flight crew

- private pilot — aeroplane;
- commercial pilot — aeroplane;
- airline transport pilot — aeroplane;
- private pilot — helicopter;
- commercial pilot — helicopter;
- airline transport pilot — helicopter;
- glider pilot;
- free balloon pilot;
- flight navigator;
- flight engineer.

b) Other personnel

- aircraft maintenance (technician/engineer/mechanic);
- air traffic controller;
- flight operations officer;
- aeronautical station operator.

1.2.1 Authority to act as a flight crew member

A person shall not act as a flight crew member of an aircraft unless a valid licence is held showing compliance with the specifications of this Annex and appropriate to the duties to be performed by that person. The licence shall have been issued by the State of Registry of that aircraft or by any other Contracting State and rendered valid by the State of Registry of that aircraft.

Note.— Article 29 of the Convention on International Civil Aviation requires that the flight crew members carry their appropriate licences on board every aircraft engaged in international air navigation.

1.2.2 Method of rendering a licence valid

1.2.2.1 When a Contracting State renders valid a licence issued by another Contracting State, as an alternative to the issuance of its own licence, it shall establish validity by suitable authorization to be carried with the former licence accepting it as the equivalent of the latter. The validity of the authorization shall not extend beyond the period of validity of the licence.

Note.— This provision is not intended to preclude the State that issued the licence from extending, by a suitable notification, the period of validity of the licence without necessarily requiring either the physical return of the licence or the appearance of the licence holder before the authorities of that State.

1.2.2.2 Recommendation.— A pilot licence issued by a Contracting State should be rendered valid by other Contracting States for use in private flights.

Note.— Contracting States which, without formality, render valid a licence issued by another Contracting State for use in private flights are encouraged to notify this facility in their Aeronautical Information Publications.

1.2.3 Privileges of the holder of a licence

A Contracting State shall not permit the holder of a licence to exercise privileges other than those granted by that licence.

1.2.4 Medical fitness

Note 1.— Guidance material is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— To satisfy the licensing requirements of medical fitness for the issue of various types of licences, the applicant must meet certain appropriate medical requirements which are specified as three classes of Medical Assessment. Details are given in 6.2, 6.3, 6.4 and 6.5. To provide the necessary evidence to satisfy the requirements of 1.2.4.1, the Licensing Authority issues the licence holder with the appropriate Medical Assessment, Class 1, Class 2 or Class 3. This can be done in several ways such as a suitably titled separate certificate, a statement on the licence, a national regulation stipulating that the Medical Assessment is an integral part of the licence, etc.

1.2.4.1 An applicant for a licence shall, when applicable, hold a Medical Assessment issued in accordance with the provisions of Chapter 6.

1.2.4.2 The duration of the period of currency of a Medical Assessment shall be in accordance with the provisions of 1.2.5. The period of currency shall begin on the date the Medical Assessment is issued.

1.2.4.3 Except as provided in 1.2.5.2.3, flight crew members or air traffic controllers shall not exercise the privileges of their licence unless they hold a current Medical Assessment appropriate to the licence.

1.2.4.4 Contracting States shall designate medical examiners, qualified and licensed in the practice of medicine, to conduct medical examinations of fitness of applicants for

the issue or renewal of the licences or ratings specified in Chapters 2 and 3, and of the appropriate licences specified in Chapter 4.

1.2.4.4.1 Medical examiners shall have had, or shall receive, training in aviation medicine.

1.2.4.4.2 Recommendation.— Medical examiners should acquire practical knowledge and experience of the conditions in which the holders of licences and ratings carry out their duties.

1.2.4.5 Applicants for licences or ratings for which medical fitness is prescribed shall sign and furnish to the medical examiner a declaration stating whether they have previously undergone such an examination and, if so, with what result.

1.2.4.5.1 Any false declaration to a medical examiner made by an applicant for a licence or rating shall be reported to the Licensing Authority of the issuing State for such action as may be considered appropriate.

1.2.4.6 Having completed the medical examination of an applicant in accordance with Chapter 6, the medical examiner shall submit a signed report to the Licensing Authority, in accordance with its requirements, detailing the results of the examination.

1.2.4.6.1 If the medical examination is carried out by a constituted group of medical examiners, Contracting States shall appoint the head of the group to be responsible for coordinating the results of the examination and signing the report.

1.2.4.7 Contracting States shall use the services of physicians experienced in the practice of aviation medicine when it is necessary to evaluate reports submitted to the Licensing Authority by medical examiners.

1.2.4.8 If the medical Standards prescribed in Chapter 6 for a particular licence are not met, the appropriate Medical Assessment shall not be issued or renewed unless the following conditions are fulfilled:

- a) accredited medical conclusion indicates that in special circumstances the applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licence applied for is not likely to jeopardize flight safety;
- b) relevant ability, skill and experience of the applicant and operational conditions have been given due consideration; and
- c) the licence is endorsed with any special limitation or limitations when the safe performance of the licence holder's duties is dependent on compliance with such limitation or limitations.

1.2.5 Validity of licences

1.2.5.1 A Contracting State, having issued a licence, shall ensure that the privileges granted by that licence, or by related ratings, are not exercised unless the holder maintains competency and meets the requirements for recent experience established by that State.

1.2.5.1.1 A Contracting State, having issued a licence, shall ensure that other Contracting States are enabled to be satisfied as to the validity of the licence.

Note 1.— The maintenance of competency of flight crew members, engaged in commercial air transport operations, may be satisfactorily established by demonstration of skill during proficiency flight checks completed in accordance with Annex 6.

Note 2.— Maintenance of competency may be satisfactorily recorded in the operator's records, or in the flight crew member's personal log book or licence.

Note 3.— Flight crew members may, to the extent deemed feasible by the State of Registry, demonstrate their continuing competency in synthetic flight trainers approved by that State.

Note 4.— See the Manual of Criteria for the Qualification of Flight Simulators (Doc 9625).

1.2.5.2 Except as provided in 1.2.5.2.1, 1.2.5.2.2 and 1.2.5.2.3, a report of medical fitness obtained in accordance with 1.2.4.5 and 1.2.4.6 shall be submitted at intervals of not greater than:

- 24 months for the private pilot licence — aeroplane;
- 12 months for the commercial pilot licence — aeroplane;
- 12 months for the airline transport pilot licence — aeroplane;
- 24 months for the private pilot licence — helicopter;
- 12 months for the commercial pilot licence — helicopter;
- 12 months for the airline transport pilot licence — helicopter;
- 24 months for the glider pilot licence;
- 24 months for the free balloon pilot licence;
- 12 months for the flight navigator licence;
- 12 months for the flight engineer licence;
- 24 months for the air traffic controller licence.

1.2.5.2.1 When the holders of airline transport pilot licences — aeroplane and helicopter have passed their 40th birthday, the 12-month interval specified in 1.2.5.2 shall be reduced to six months.

1.2.5.2.2 **Recommendation.**— *When the holders have passed their 40th birthday, the 24-month interval specified for the private pilot licences — aeroplane and helicopter, glider pilot licence, free balloon pilot licence, and air traffic controller licence should be reduced to 12 months, and the 12-month interval specified for the commercial pilot licences — aeroplane and helicopter should be reduced to six months.*

1.2.5.2.3 *Circumstances in which a medical examination may be deferred.* The prescribed re-examination of a licence holder operating in an area distant from designated medical examination facilities may be deferred at the discretion of the Licensing Authority, provided that such deferment shall only be made as an exception and shall not exceed:

- a) a single period of six months in the case of a flight crew member of an aircraft engaged in non-commercial operations;
- b) two consecutive periods each of three months in the case of a flight crew member of an aircraft engaged in commercial operations provided that in each case a favourable medical report is obtained after examination by a designated medical examiner of the area concerned, or, in cases where such a designated medical examiner is not available, by a physician legally qualified to practise medicine in that area. A report of the medical examination shall be sent to the Licensing Authority where the licence was issued;
- c) in the case of a private pilot, a single period not exceeding 24 months where the medical examination is carried out by an examiner designated under 1.2.4.4 by the Contracting State in which the applicant is temporarily located. A report of the medical examination shall be sent to the Licensing Authority where the licence was issued.

1.2.6 Decrease in medical fitness

1.2.6.1 Holders of licences provided for in this Annex shall not exercise the privileges of their licences and related ratings at any time when they are aware of any decrease in their medical fitness which might render them unable to safely and properly exercise these privileges.

1.2.6.1.1 **Recommendation.**— *Each Contracting State should, as far as practicable, ensure that licence holders do not exercise the privileges of their licences and related ratings during any period in which their medical fitness has, from any cause, decreased to an extent that would have prevented the issue or renewal of their Medical Assessment.*

1.2.7 Use of psychoactive substances

1.2.7.1 Holders of licences provided for in this Annex shall not exercise the privileges of their licences and related ratings while under the influence of any psychoactive substance which might render them unable to safely and properly exercise these privileges.

1.2.7.2 Holders of licences provided for in this Annex shall not engage in any problematic use of substances.

1.2.7.3 **Recommendation.**— *Contracting States should ensure, as far as practicable, that all licence holders who engage in any kind of problematic use of substances are identified and removed from their safety-critical functions. Return to the safety-critical functions may be considered after successful treatment or, in cases where no treatment is necessary, after cessation of the problematic use of substances and upon determination that the person's continued performance of the function is unlikely to jeopardize safety.*

Note.— *Guidance on suitable methods of identification (which may include biochemical testing on such occasions as*

pre-employment, upon reasonable suspicion, after accidents/incidents, at intervals, and at random) and on other prevention topics is contained in the Manual on Prevention of Problematic Use of Substances in the Aviation Workplace (Doc 9654).

1.2.8 Approved training

Note.— *The qualifications required for the issue of personnel licences can be more readily and speedily acquired by applicants who undergo closely supervised, systematic and continuous courses of training, conforming to a planned syllabus or curriculum. Provision has accordingly been made for some reduction in the experience requirements for the issue of certain licences and ratings prescribed in these Standards and Recommended Practices, in respect of an applicant who has satisfactorily completed a course of approved training.*

Approved training shall provide a level of competency at least equal to that provided by the minimum experience requirements for personnel not receiving such approved training.

CHAPTER 2. LICENCES AND RATINGS FOR PILOTS

2.1 General rules concerning pilot licences and ratings

2.1.1 General licensing specifications

2.1.1.1 A person shall not act either as pilot-in-command or as co-pilot of an aircraft in any of the following categories unless that person is the holder of a pilot licence issued in accordance with the provisions of this Chapter:

- aeroplane
- helicopter
- glider
- free balloon.

2.1.1.2 The category of aircraft shall be included in the title of the licence itself, or endorsed as a category rating on the licence.

2.1.1.2.1 When the holder of a pilot licence seeks a licence for an additional category of aircraft, the Licensing Authority shall either:

- a) issue the licence holder with an additional pilot licence for that category of aircraft; or
- b) endorse the original licence with the new category rating, subject to the conditions of 2.1.2.

Note.— The requirements for category ratings are given in terms of licensing specifications for pilots and at levels appropriate to the privileges to be granted to the licence holder.

2.1.1.3 An applicant shall, before being issued with any pilot licence or rating, meet such requirements in respect of age, knowledge, experience, flight instruction, skill and medical fitness, as are specified for that licence or rating.

2.1.1.3.1 An applicant for any pilot licence or rating shall demonstrate, in a manner determined by the Licensing Authority, such requirements for knowledge and skill as are specified for that licence or rating.

2.1.2 Category ratings

2.1.2.1 When established, category ratings shall be for categories of aircraft listed in 2.1.1.1.

2.1.2.2 Category ratings shall not be endorsed on a licence when the category is included in the title of the licence itself.

2.1.2.3 Any additional category rating endorsed on a pilot licence shall indicate the level of licensing privileges at which the category rating is granted.

2.1.2.4 The holder of a pilot licence seeking additional category ratings shall meet the requirements of this Annex appropriate to the privileges for which the category rating is sought.

2.1.3 Class and type ratings

2.1.3.1 Class ratings shall be established for aeroplanes certificated for single-pilot operation and shall comprise:

- a) single-engine, land;
- b) single-engine, sea;
- c) multi-engine, land;
- d) multi-engine, sea.

Note.— The provisions of this paragraph do not preclude the establishment of other class ratings within this basic structure.

2.1.3.1.1 **Recommendation.**— *Contracting States should consider establishing a class rating for those helicopters certificated for single-pilot operations and which have comparable handling, performance and other characteristics.*

2.1.3.2 Type ratings shall be established for:

- a) each type of aircraft certificated for operation with a minimum crew of at least two pilots;
- b) each type of helicopter certificated for single-pilot operation except where a class rating has been issued under 2.1.3.1.1; and
- c) any type of aircraft whenever considered necessary by the Licensing Authority.

Note.— Requirements for class and type ratings for gliders and free balloons have not been determined.

2.1.3.3 When an applicant demonstrates skill and knowledge for the initial issue of a pilot licence, the category and the

ratings appropriate to the class or type of aircraft used in the demonstration shall be entered on the licence.

2.1.4 Circumstances in which class and type ratings are required

2.1.4.1 A Contracting State having issued a pilot licence shall not permit the holder of such licence to act either as pilot-in-command or as co-pilot of an aeroplane or helicopter unless the holder has received authorization as follows:

- a) the appropriate class rating specified in 2.1.3.1; or
- b) a type rating when required in accordance with the provisions of 2.1.3.2.

2.1.4.1.1 When a type rating is issued limiting the privileges to act as co-pilot, such limitation shall be endorsed on the rating.

2.1.4.2 For the purpose of training, testing, or specific special purpose non-revenue, non-passenger carrying flights, special authorization may be provided in writing to the licence holder by the Licensing Authority in place of issuing the class or type rating in accordance with 2.1.4.1. This authorization shall be limited in validity to the time needed to complete the specific flight.

2.1.5 Requirements for the issue of class and type ratings

2.1.5.1 Class rating

The applicant shall have demonstrated a degree of skill appropriate to the licence in an aircraft of the class for which the rating is sought.

2.1.5.2 Type rating as required by 2.1.3.2 a)

The applicant shall have:

- a) gained, under appropriate supervision, experience in the applicable type of aircraft and/or flight simulator in the following:
 - normal flight procedures and manoeuvres during all phases of flight;
 - abnormal and emergency procedures and manoeuvres in the event of failures and malfunctions of equipment, such as powerplant, systems and airframe;
 - where applicable, instrument procedures, including instrument approach, missed approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure;

- procedures for crew incapacitation and crew coordination including allocation of pilot tasks; crew cooperation and use of checklists;

Note.— Attention is called to Recommendation 2.1.8.2 on the qualifications required for pilots giving flight training.

- b) demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the duties of a pilot-in-command or a co-pilot as applicable; and
- c) demonstrated, at the airline transport pilot licence level, an extent of knowledge determined by the Licensing Authority on the basis of the requirements specified in 2.5.1.2 or 2.9.1.2, as applicable.

2.1.5.3 Type rating as required by 2.1.3.2 b) and c)

The applicant shall have demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the licensing requirements and piloting functions of the applicant.

2.1.6 Use of synthetic flight trainers for demonstrations of skill

The use of a synthetic flight trainer for performing any manoeuvre required during the demonstration of skill for the issue of a licence or rating shall be approved by the Licensing Authority which shall ensure that the synthetic flight trainer used is appropriate to the task.

2.1.7 Circumstances in which an instrument rating is required

A Contracting State, having issued a pilot licence, shall not permit the holder thereof to act either as pilot-in-command or as co-pilot of an aircraft under instrument flight rules (IFR) unless such holder has received proper authorization from such Contracting State. Proper authorization shall comprise an instrument rating appropriate to the aircraft category.

Note.— The instrument rating is included in the airline transport pilot licence — aeroplane, and the provisions of 2.1.7 do not preclude the issue of a licence having the instrument rating as an integral part thereof.

2.1.8 Circumstances in which authorization to conduct flight instruction is required

2.1.8.1 A Contracting State having issued a pilot licence shall not permit the holder thereof to carry out flight instruction required for the issue of a private pilot

licence — aeroplane or helicopter, commercial pilot licence — aeroplane or helicopter, instrument rating — aeroplane or helicopter, or a flight instructor rating appropriate to aeroplanes and helicopters, unless such holder has received proper authorization from such Contracting State. Proper authorization shall comprise:

- a) a flight instructor rating on the holder's licence; or
- b) the authority to act as an agent of an approved organization authorized by the Licensing Authority to carry out flight instruction; or
- c) a specific authorization granted by the Contracting State which issued the licence.

2.1.8.2 Recommendation.— *A Contracting State having issued a pilot licence should not permit the holder thereof to carry out flight instruction for the issue of any licence or rating not specified in 2.1.8.1 above unless such holder has received proper authorization from such Contracting State.*

2.1.9 Crediting of flight time

2.1.9.1 A student pilot or the holder of a pilot licence shall be entitled to be credited in full with all solo, dual instruction and pilot-in-command flight time towards the total flight time required for the initial issue of a pilot licence or the issue of a higher grade of pilot licence.

2.1.9.2 The holder of a pilot licence, when acting as co-pilot of an aircraft required to be operated with a co-pilot, shall be entitled to be credited with not more than 50 per cent of the co-pilot flight time towards the total flight time required for a higher grade of pilot licence.

2.1.9.3 The holder of a pilot licence, when acting as co-pilot performing under the supervision of the pilot-in-command the functions and duties of a pilot-in-command, shall be entitled to be credited in full with this flight time towards the total flight time required for a higher grade of pilot licence.

2.1.10 Curtailment of privileges of pilots who have attained their 60th birthday

2.1.10.1 A Contracting State, having issued pilot licences, shall not permit the holders thereof to act as pilot-in-command of an aircraft engaged in scheduled international air services or non-scheduled international air transport operations for remuneration or hire if the licence holders have attained their 60th birthday.

2.1.10.2 Recommendation.— *A Contracting State, having issued pilot licences, should not permit the holders thereof to act as co-pilot of an aircraft engaged in scheduled international*

air services or non-scheduled international air transport operations for remuneration or hire if the licence holders have attained their 60th birthday.

2.2 Student pilot

2.2.1 A student pilot shall meet requirements prescribed by the Contracting State concerned. In prescribing such requirements, Contracting States shall ensure that the privileges granted would not permit student pilots to constitute a hazard to air navigation.

2.2.2 A student pilot shall not fly solo unless under the supervision of, or with the authority of, an authorized flight instructor.

2.2.2.1 A student pilot shall not fly solo in an aircraft on an international flight unless by special or general arrangement between the Contracting States concerned.

2.2.3 Medical Fitness

A Contracting State shall not permit a student pilot to fly solo unless that student pilot holds a current Class 2 Medical Assessment.

2.3 Private pilot licence — Aeroplane

Note.— *The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the private pilot licence — aeroplane.*

2.3.1 Requirements for the issue of the licence

2.3.1.1 Age

The applicant shall be not less than 17 years of age.

2.3.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a private pilot licence — aeroplane, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a private pilot licence — aeroplane; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation of aeroplane powerplants, systems and instruments;
- c) operating limitations of aeroplanes and powerplants; relevant operational information from the flight manual or other appropriate document;

Flight performance and planning

- d) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
- e) use and practical application of take-off, landing and other performance data;
- f) pre-flight and en-route flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;

Human performance

- g) human performance relevant to the private pilot — aeroplane;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- h) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

Navigation

- i) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

Operational procedures

- j) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- k) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

Principles of flight

- l) principles of flight relating to aeroplanes;

Radiotelephony

- m) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.3.1.3 Experience

2.3.1.3.1 The applicant shall have completed not less than 40 hours of flight time as a pilot of aeroplanes. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 40 hours. Credit for such experience shall be limited to a maximum of 5 hours.

2.3.1.3.1.1 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.3.1.3.1 can be reduced accordingly.

2.3.1.3.2 The applicant shall have completed in aeroplanes not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 270 km (150 NM) in the course of which full-stop landings at two different aerodromes shall be made.

2.3.1.4 Flight instruction

2.3.1.4.1 The applicant shall have received dual instruction in aeroplanes from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- a) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- b) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- c) control of the aeroplane by external visual reference;
- d) flight at critically slow airspeeds; recognition of, and recovery from, incipient and full stalls;
- e) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- f) normal and cross-wind take-offs and landings;
- g) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- h) flight by reference solely to instruments, including the completion of a level 180° turn;

- i) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids;
- j) emergency operations, including simulated aeroplane equipment malfunctions; and
- k) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology.

2.3.1.4.2 If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in aeroplanes in night flying, including take-offs, landings and navigation.

Note.— The instrument experience specified in 2.3.1.4.1 h) and the night flying experience specified in 2.3.1.4.2 do not entitle the holder of a private pilot licence — aeroplane to pilot aeroplanes under IFR.

2.3.1.5 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aeroplane, the procedures and manoeuvres described in 2.3.1.4 with a degree of competency appropriate to the privileges granted to the holder of a private pilot licence — aeroplane, and to:

- a) operate the aeroplane within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.3.1.6 Medical fitness

The applicant shall hold a current Class 2 Medical Assessment.

Note.— Attention is called to 2.6.1.5 on the medical fitness requirements for private pilot licence holders seeking an instrument rating.

2.3.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.3.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a private pilot licence — aeroplane shall be to act, but not for remuneration, as pilot-in-command or co-pilot of any aeroplane engaged in non-revenue flights.

2.3.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.3.1.4.2.

2.4 Commercial pilot licence — Aeroplane

Note.— The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the commercial pilot licence — aeroplane.

2.4.1 Requirements for the issue of the licence

2.4.1.1 Age

The applicant shall be not less than 18 years of age.

Note.— Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.

2.4.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a commercial pilot licence — aeroplane, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a commercial pilot licence — aeroplane; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation and functioning of aeroplane powerplants, systems and instruments;
- c) operating limitations of appropriate aeroplanes and powerplants; relevant operational information from the flight manual or other appropriate document;
- d) use and serviceability checks of equipment and systems of appropriate aeroplanes;
- e) maintenance procedures for airframes, systems and powerplants of appropriate aeroplanes;

Flight performance and planning

- f) effects of loading and mass distribution on aeroplane handling, flight characteristics and performance; mass and balance calculations;

- g) use and practical application of take-off, landing and other performance data;
- h) pre-flight and en-route flight planning appropriate to operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;

Human performance

- i) human performance relevant to the commercial pilot — aeroplane;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- j) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- k) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions; hazardous weather avoidance;

Navigation

- l) air navigation, including the use of aeronautical charts, instruments and navigation aids; an understanding of the principles and characteristics of appropriate navigation systems; operation of airborne equipment;

Operational procedures

- m) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- n) appropriate precautionary and emergency procedures;
- o) operational procedures for carriage of freight; potential hazards associated with dangerous goods;
- p) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes;

Principles of flight

- q) principles of flight relating to aeroplanes;

Radiotelephony

- r) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.4.1.3 Experience

2.4.1.3.1 The applicant shall have completed not less than 200 hours of flight time, or 150 hours if completed during a course of approved training, as a pilot of aeroplanes. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 200 hours or 150 hours, as the case may be. Credit for such experience shall be limited to a maximum of 10 hours.

2.4.1.3.1.1 The applicant shall have completed in aeroplanes not less than:

- a) 100 hours as pilot-in-command or, in the case of a course of approved training, 70 hours as pilot-in-command;
- b) 20 hours of cross-country flight time as pilot-in-command including a cross-country flight totalling not less than 540 km (300 NM) in the course of which full-stop landings at two different aerodromes shall be made;
- c) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time; and
- d) if the privileges of the licence are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landings as pilot-in-command.

2.4.1.3.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.4.1.3.1 can be reduced accordingly.

2.4.1.4 Flight instruction

2.4.1.4.1 The applicant shall have received dual instruction in aeroplanes from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- a) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- b) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;

- c) control of the aeroplane by external visual reference;
- d) flight at critically slow airspeeds; spin avoidance; recognition of, and recovery from, incipient and full stalls;
- e) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- f) normal and cross-wind take-offs and landings;
- g) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- h) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- i) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;
- j) abnormal and emergency procedures and manoeuvres; and
- k) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology.

2.4.1.4.2 If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in aeroplanes in night flying, including take-offs, landings and navigation.

Note.— The instrument experience specified in 2.4.1.3.1.1 c) and 2.4.1.4.1 h) and the night flying experience specified in 2.4.1.3.1.1 d) and 2.4.1.4.2 do not entitle the holder of a commercial pilot licence — aeroplane to pilot aeroplanes under IFR.

2.4.1.5 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aeroplane, the procedures and manoeuvres described in 2.4.1.4 with a degree of competency appropriate to the privileges granted to the holder of a commercial pilot licence — aeroplane, and to:

- a) operate the aeroplane within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.4.1.6 Medical fitness

The applicant shall hold a current Class 1 Medical Assessment.

2.4.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.4.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a commercial pilot licence — aeroplane shall be:

- a) to exercise all the privileges of the holder of a private pilot licence — aeroplane;
- b) to act as pilot-in-command in any aeroplane engaged in operations other than commercial air transportation;
- c) to act as pilot-in-command in commercial air transportation in any aeroplane certificated for single-pilot operation; and
- d) to act as co-pilot in commercial air transportation in aeroplanes required to be operated with a co-pilot.

2.4.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.4.1.3.1.1 d) and 2.4.1.4.2.

2.5 Airline transport pilot licence — Aeroplane

2.5.1 Requirements for the issue of the licence

2.5.1.1 Age

The applicant shall be not less than 21 years of age.

Note.— Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.

2.5.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an airline transport pilot licence — aeroplane, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of an airline transport pilot licence — aeroplane; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) general characteristics and limitations of electrical, hydraulic, pressurization and other aeroplane systems; flight control systems, including autopilot and stability augmentation;
- c) principles of operation, handling procedures and operating limitations of aeroplane powerplants; effects of atmospheric conditions on engine performance; relevant operational information from the flight manual or other appropriate document;
- d) operating procedures and limitations of appropriate aeroplanes; effects of atmospheric conditions on aeroplane performance;
- e) use and serviceability checks of equipment and systems of appropriate aeroplanes;
- f) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;
- g) maintenance procedures for airframes, systems and powerplants of appropriate aeroplanes;

Flight performance and planning

- h) effects of loading and mass distribution on aeroplane handling, flight characteristics and performance; mass and balance calculations;
- i) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
- j) pre-flight and en-route operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;

Human performance

- k) human performance relevant to the airline transport pilot — aeroplane;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- l) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;

- m) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- n) causes, recognition and effects of engine and airframe icing; frontal zone penetration procedures; hazardous weather avoidance;
- o) practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts; jetstreams;

Navigation

- p) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- q) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aeroplanes;
- r) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;
- s) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;

Operational procedures

- t) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
- u) precautionary and emergency procedures; safety practices associated with flight under IFR;
- v) operational procedures for carriage of freight and dangerous goods;
- w) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes;

Principles of flight

- x) principles of flight relating to aeroplanes; subsonic aerodynamics; compressibility effects, manoeuvre boundary limits, wing design characteristics, effects of supplementary lift and drag devices; relationships between lift, drag and thrust at various airspeeds and in different flight configurations;

Radiotelephony

- y) radiotelephony procedures and phraseology; action to be taken in case of communication failure.

2.5.1.3 *Experience*

2.5.1.3.1 The applicant shall have completed not less than 1 500 hours of flight time as a pilot of aeroplanes. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 1 500 hours. Credit for such experience shall be limited to a maximum of 100 hours, of which not more than 25 hours shall have been acquired in a flight procedure trainer or a basic instrument flight trainer.

2.5.1.3.1.1 The applicant shall have completed in aeroplanes not less than:

- a) 250 hours, either as pilot-in-command, or made up by not less than 100 hours as pilot-in-command and the necessary additional flight time as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Licensing Authority;
- b) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Licensing Authority;
- c) 75 hours of instrument time, of which not more than 30 hours may be instrument ground time; and
- d) 100 hours of night flight as pilot-in-command or as co-pilot.

2.5.1.3.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.5.1.3.1 can be reduced accordingly.

2.5.1.4 *Flight instruction*

The applicant shall have received the dual flight instruction required for the issue of the commercial pilot licence — aeroplane (2.4.1.4) and for the issue of the instrument rating — aeroplane (2.6.1.3).

2.5.1.5 *Skill*

2.5.1.5.1 The applicant shall have demonstrated the ability to perform, as pilot-in-command of a multi-engined

aeroplane required to be operated with a co-pilot, the following procedures and manoeuvres:

- a) pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;
- b) normal flight procedures and manoeuvres during all phases of flight;
- c) procedures and manoeuvres for IFR operations under normal, abnormal and emergency conditions, including simulated engine failure, and covering at least the following:
 - transition to instrument flight on take-off;
 - standard instrument departures and arrivals;
 - en-route IFR procedures and navigation;
 - holding procedures;
 - instrument approaches to specified minima;
 - missed approach procedures;
 - landings from instrument approaches;
- d) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe; and
- e) procedures for crew incapacitation and crew coordination, including allocation of pilot tasks, crew cooperation and use of checklists.

2.5.1.5.1.1 The applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in 2.5.1.5.1 with a degree of competency appropriate to the privileges granted to the holder of an airline transport pilot licence — aeroplane, and to:

- a) operate the aeroplane within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge;
- e) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never in doubt;
- f) understand and apply crew coordination and incapacitation procedures; and
- g) communicate effectively with the other flight crew members.

2.5.1.6 Medical fitness

The applicant shall hold a current Class 1 Medical Assessment.

2.5.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of an airline transport pilot licence — aeroplane shall be:

- a) to exercise all the privileges of the holder of a private and commercial pilot licence — aeroplane and of an instrument rating — aeroplane; and
- b) to act as pilot-in-command and co-pilot in aeroplanes in air transportation.

2.6 Instrument rating — Aeroplane

Note.— The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the instrument rating — aeroplane.

2.6.1 Requirements for the issue of the rating

2.6.1.1 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an instrument rating — aeroplane, in at least the following subjects:

Air law

- a) rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;

Aircraft general knowledge

- b) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aeroplanes under IFR and in instrument meteorological conditions; use and limitations of autopilot;
- c) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

Flight performance and planning

- d) pre-flight preparations and checks appropriate to flight under IFR;

- e) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

Human performance

- f) human performance relevant to instrument flight in aeroplanes;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- g) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;
- h) causes, recognition and effects of engine and airframe icing; frontal zone penetration procedures; hazardous weather avoidance;

Navigation

- i) practical air navigation using radio navigation aids;
- j) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;

Operational procedures

- k) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
- l) precautionary and emergency procedures; safety practices associated with flight under IFR;

Radiotelephony

- m) radiotelephony procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure.

2.6.1.2 Experience

2.6.1.2.1 The applicant shall hold a private or commercial pilot licence — aeroplane.

2.6.1.2.2 The applicant shall have completed not less than:

- a) 50 hours of cross-country flight time as pilot-in-command of aircraft in categories acceptable to the Licensing Authority, of which not less than 10 hours shall be in aeroplanes; and
- b) 40 hours of instrument time in aeroplanes or helicopters of which not more than 20 hours, or 30 hours where a flight simulator is used, may be instrument ground time. The ground time shall be under the supervision of an authorized instructor.

2.6.1.3 Flight instruction

2.6.1.3.1 The applicant shall have gained not less than 10 hours of the instrument flight time required in 2.6.1.2.2 b) while receiving dual instrument flight instruction in aeroplanes from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the holder of an instrument rating:

- a) pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;
- b) pre-flight inspection, use of checklists, taxiing and pre-take-off checks;
- c) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:
 - transition to instrument flight on take-off;
 - standard instrument departures and arrivals;
 - en-route IFR procedures;
 - holding procedures;
 - instrument approaches to specified minima;
 - missed approach procedures;
 - landings from instrument approaches;
- d) in-flight manoeuvres and particular flight characteristics.

2.6.1.3.2 If the privileges of the instrument rating are to be exercised on multi-engined aeroplanes, the applicant shall have received dual instrument flight instruction in such an aeroplane from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in the operation of the aeroplane solely by reference to instruments with one engine inoperative or simulated inoperative.

2.6.1.4 Skill

2.6.1.4.1 The applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in 2.6.1.3.1 with a degree of competency appropriate to the privileges granted to the holder of an instrument rating — aeroplane, and to:

- a) operate the aeroplane within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.6.1.4.1.1 The applicant shall have demonstrated the ability to operate multi-engined aeroplanes solely by reference to instruments with one engine inoperative, or simulated inoperative, if the privileges of the instrument rating are to be exercised on such aeroplanes.

Note.— Attention is called to 2.1.6 on the use of synthetic flight trainers for demonstrations of skill.

2.6.1.5 Medical fitness

2.6.1.5.1 Applicants who hold a private pilot licence shall have established their hearing acuity on the basis of compliance with the hearing requirements for the issue of a Class 1 Medical Assessment.

2.6.1.5.2 **Recommendation.**— *Contracting States should consider requiring the holder of a private pilot licence to comply with the physical and mental, and visual requirements for the issue of a Class 1 Medical Assessment.*

2.6.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges

2.6.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of an instrument rating — aeroplane shall be to pilot aeroplanes under IFR.

2.6.2.2 Before exercising the privileges on multi-engined aeroplanes, the holder of the rating shall have complied with the requirements of 2.6.1.4.1.1.

Note.— Attention is called to 2.10.3 on the exercise of joint privileges of the instrument rating — aeroplane and of the instrument rating — helicopter.

2.7 Private pilot licence — Helicopter**2.7.1 Requirements for the issue of the licence****2.7.1.1 Age**

The applicant shall be not less than 17 years of age.

2.7.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a private pilot licence — helicopter, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a private pilot licence — helicopter; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation of helicopter powerplants, transmission (power-trains), systems and instruments;
- c) operating limitations of helicopters and powerplants; relevant operational information from the flight manual;

Flight performance and planning

- d) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
- e) use and practical application of take-off, landing and other performance data;
- f) pre-flight and en-route flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;

Human performance

- g) human performance relevant to the private pilot — helicopter;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- h) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

Navigation

- i) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

Operational procedures

- j) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- k) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather and wake turbulence; settling with power, ground resonance, roll-over and other operating hazards;

Principles of flight

- l) principles of flight relating to helicopters;

Radiotelephony

- m) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.7.1.3 Experience

2.7.1.3.1 The applicant shall have completed not less than 40 hours of flight time as a pilot of helicopters. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 40 hours. Credit for such experience shall be limited to a maximum of 5 hours.

2.7.1.3.1.1 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.7.1.3.1 can be reduced accordingly.

2.7.1.3.2 The applicant shall have completed in helicopters not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 180 km (100 NM) in the course of which landings at two different points shall be made.

2.7.1.4 Flight instruction

2.7.1.4.1 The applicant shall have received not less than 20 hours of dual instruction time in helicopters from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- a) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- b) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- c) control of the helicopter by external visual reference;
- d) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- e) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground;
- f) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- g) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids, including a flight of at least one hour;
- h) emergency operations, including simulated helicopter equipment malfunctions; autorotative approach and landing; and
- i) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology.

2.7.1.4.1.1 **Recommendation.**— *The applicant should have received dual instrument flight instruction from an authorized flight instructor. The instructor should ensure that the applicant has operational experience in flight solely by reference to instruments, including the completion of a level 180° turn, in a suitably instrumented helicopter.*

2.7.1.4.2 If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in helicopters in night flying, including take-offs, landings and navigation.

Note.— *The instrument experience specified in 2.7.1.4.1.1 and the night flying experience specified in 2.7.1.4.2 do not entitle the holder of a private pilot licence — helicopter to pilot helicopters under IFR.*

2.7.1.5 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of a helicopter, the procedures and manoeuvres described in 2.7.1.4 with a degree of competency appropriate to the privileges granted to the holder of a private pilot licence — helicopter, and to:

- a) operate the helicopter within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.7.1.6 Medical fitness

The applicant shall hold a current Class 2 Medical Assessment.

Note.— *Attention is called to 2.10.1.5 on the medical fitness requirements for private pilot licence holders seeking an instrument rating.*

2.7.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.7.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a private pilot licence — helicopter shall be to act, but not for remuneration, as pilot-in-command or co-pilot of any helicopter engaged in non-revenue flights.

2.7.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.7.1.4.2.

2.8 Commercial pilot licence — Helicopter

2.8.1 Requirements for the issue of the licence

2.8.1.1 Age

The applicant shall be not less than 18 years of age.

Note.— *Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.*

2.8.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a commercial pilot licence — helicopter, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a commercial pilot licence — helicopter; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation and functioning of helicopter powerplants, transmission (power-trains), systems and instruments;
- c) operating limitations of appropriate helicopters and powerplants; relevant operational information from the flight manual;
- d) use and serviceability checks of equipment and systems of appropriate helicopters;
- e) maintenance procedures for airframes, systems and powerplants of appropriate helicopters;

Flight performance and planning

- f) effects of loading and mass distribution, including external loads, on helicopter handling, flight characteristics and performance; mass and balance calculations;
- g) use and practical application of take-off, landing and other performance data;
- h) pre-flight and en-route flight planning appropriate to operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;

Human performance

- i) human performance relevant to the commercial pilot — helicopter;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- j) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- k) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions; hazardous weather avoidance;

Navigation

- l) air navigation, including the use of aeronautical charts, instruments and navigation aids; an understanding of the principles and characteristics of appropriate navigation systems; operation of airborne equipment;

Operational procedures

- m) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- n) appropriate precautionary and emergency procedures; settling with power, ground resonance, roll-over and other operating hazards;
- o) operational procedures for carriage of freight, including external loads; potential hazards associated with dangerous goods;
- p) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from helicopters;

Principles of flight

- q) principles of flight relating to helicopters;

Radiotelephony

- r) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.8.1.3 *Experience*

2.8.1.3.1 The applicant shall have completed not less than 150 hours of flight time, or 100 hours if completed during a course of approved training, as a pilot of helicopters. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 150 hours or 100 hours, as the case may be. Credit for such experience shall be limited to a maximum of 10 hours.

2.8.1.3.1.1 The applicant shall have completed in helicopters not less than:

- a) 35 hours as pilot-in-command;
- b) 10 hours of cross-country flight time as pilot-in-command including a cross-country flight in the course of which landings at two different points shall be made;
- c) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time; and

- d) if the privileges of the licence are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landing patterns as pilot-in-command.

2.8.1.3.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.8.1.3.1 can be reduced accordingly.

2.8.1.4 Flight instruction

2.8.1.4.1 The applicant shall have received dual instruction in helicopters from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- a) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- b) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- c) control of the helicopter by external visual reference;
- d) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- e) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground; steep approaches;
- f) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- g) hovering out of ground effect; operations with external load, if applicable; flight at high altitude;
- h) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- i) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;
- j) abnormal and emergency procedures, including simulated helicopter equipment malfunctions, autorotative approach and landing; and
- k) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology.

2.8.1.4.2 If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in helicopters in night flying, including take-offs, landings and navigation.

Note.— The instrument experience specified in 2.8.1.3.1.1 c) and 2.8.1.4.1 h) and the night flying experience specified in 2.8.1.3.1.1 d) and 2.8.1.4.2 do not entitle the holder of a commercial pilot licence — helicopter to pilot helicopters under IFR.

2.8.1.5 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of a helicopter, the procedures and manoeuvres described in 2.8.1.4 with a degree of competency appropriate to the privileges granted to the holder of a commercial pilot licence — helicopter, and to:

- a) operate the helicopter within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.8.1.6 Medical fitness

The applicant shall hold a current Class 1 Medical Assessment.

2.8.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.8.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a commercial pilot licence — helicopter shall be:

- a) to exercise all the privileges of the holder of a private pilot licence — helicopter;
- b) to act as pilot-in-command in any helicopter engaged in operations other than commercial air transportation;
- c) to act as pilot-in-command in commercial air transportation in any helicopter certificated for single-pilot operation; and
- d) to act as co-pilot in commercial air transportation in helicopters required to be operated with a co-pilot.

2.8.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.8.1.3.1.1 d) and 2.8.1.4.2.

2.9 Airline transport pilot licence — Helicopter**2.9.1 Requirements for the issue of the licence****2.9.1.1 Age**

The applicant shall be not less than 21 years of age.

Note.— Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.

2.9.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an airline transport pilot licence — helicopter, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of an airline transport pilot licence — helicopter; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) general characteristics and limitations of electrical, hydraulic, and other helicopter systems; flight control systems, including autopilot and stability augmentation;
- c) principles of operation, handling procedures and operating limitations of helicopter powerplants; transmission (power-trains); effects of atmospheric conditions on engine performance; relevant operational information from the flight manual;
- d) operating procedures and limitations of appropriate helicopters; effects of atmospheric conditions on helicopter performance; relevant operational information from the flight manual;
- e) use and serviceability checks of equipment and systems of appropriate helicopters;
- f) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;
- g) maintenance procedures for airframes, systems and powerplants of appropriate helicopters;

Flight performance and planning

- h) effects of loading and mass distribution, including external loads, on helicopter handling, flight characteristics and performance; mass and balance calculations;

- i) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
- j) pre-flight and en-route operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;

Human performance

- k) human performance relevant to the airline transport pilot — helicopter;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- l) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- m) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- n) causes, recognition and effects of engine, airframe and rotor icing; hazardous weather avoidance;

Navigation

- o) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- p) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of helicopters;
- q) use, accuracy and reliability of navigation systems; identification of radio navigation aids;
- r) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;

Operational procedures

- s) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;

- t) precautionary and emergency procedures; settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operating hazards; safety practices associated with flight under VFR;
- u) operational procedures for carriage of freight, including external loads, and dangerous goods;
- v) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from helicopters;

Principles of flight

- w) principles of flight relating to helicopters;

Radiotelephony

- x) radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.9.1.3 Experience

2.9.1.3.1 The applicant shall have completed not less than 1 000 hours of flight time as a pilot of helicopters. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, is acceptable as part of the total flight time of 1 000 hours. Credit for such experience shall be limited to a maximum of 100 hours, of which not more than 25 hours shall have been acquired in a flight procedure trainer or a basic instrument flight trainer.

2.9.1.3.1.1 The applicant shall have completed in helicopters not less than:

- a) 250 hours, either as pilot-in-command, or made up by not less than 100 hours as pilot-in-command and the necessary additional flight time as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Licensing Authority;
- b) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, provided that the method of supervision employed is acceptable to the Licensing Authority;
- c) 30 hours of instrument time, of which not more than 10 hours may be instrument ground time; and
- d) 50 hours of night flight as pilot-in-command or as co-pilot.

2.9.1.3.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.9.1.3.1 can be reduced accordingly.

2.9.1.4 Flight instruction

The applicant shall have received the flight instruction required for the issue of the commercial pilot licence — helicopter (2.8.1.4).

Note.— The instrument time specified in 2.9.1.3.1.1 c) and the night flying time specified in 2.9.1.3.1.1 d) do not entitle the holder of the airline transport pilot licence — helicopter to pilot helicopters under IFR.

2.9.1.5 Skill

2.9.1.5.1 The applicant shall have demonstrated the ability to perform, as pilot-in-command of a helicopter required to be operated with a co-pilot, the following procedures and manoeuvres:

- a) pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;
- b) normal flight procedures and manoeuvres during all phases of flight;
- c) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe; and
- d) procedures for crew incapacitation and crew coordination including allocation of pilot tasks, crew cooperation and use of checklists.

2.9.1.5.1.1 The applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in 2.9.1.5.1 with a degree of competency appropriate to the privileges granted to the holder of an airline transport pilot licence — helicopter, and to:

- a) operate the helicopter within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge;
- e) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never in doubt;

- f) understand and apply crew coordination and incapacitation procedures; and
- g) communicate effectively with the other flight crew members.

2.9.1.6 Medical fitness

The applicant shall hold a current Class 1 Medical Assessment.

2.9.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of an airline transport pilot licence — helicopter shall be:

- a) to exercise all the privileges of the holder of a private and commercial pilot licence — helicopter; and
- b) to act as pilot-in-command and co-pilot in helicopters in air transportation.

2.10 Instrument rating — Helicopter

2.10.1 Requirements for the issue of the rating

2.10.1.1 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an instrument rating — helicopter, in at least the following subjects:

Air law

- a) rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;

Aircraft general knowledge

- b) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of helicopters under IFR and in instrument meteorological conditions; use and limitations of autopilot;
- c) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

Flight performance and planning

- d) pre-flight preparations and checks appropriate to flight under IFR;

- e) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

Human performance

- f) human performance relevant to instrument flight in helicopters;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- g) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;
- h) causes, recognition and effects of engine, airframe and rotor icing; frontal zone penetration procedures; hazardous weather avoidance;

Navigation

- i) practical air navigation using radio navigation aids;
- j) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;

Operational procedures

- k) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en route, descent and approach;
- l) precautionary and emergency procedures; safety practices associated with flight under IFR;

Radiotelephony

- m) radiotelephony procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure.

2.10.1.2 Experience

2.10.1.2.1 The applicant shall hold a private, commercial or airline transport pilot licence — helicopter.

2.10.1.2.2 The applicant shall have completed not less than:

- a) 50 hours of cross-country flight time as pilot-in-command of aircraft in categories acceptable to the

Licensing Authority, of which not less than 10 hours shall be in helicopters; and

- b) 40 hours of instrument time in helicopters or aeroplanes of which not more than 20 hours, or 30 hours where a flight simulator is used, may be instrument ground time. The ground time shall be under the supervision of an authorized instructor.

2.10.1.3 *Flight instruction*

The applicant shall have gained not less than 10 hours of the instrument flight time required in 2.10.1.2.2 b) while receiving dual instrument flight instruction in helicopters from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas and to the level of performance required for the holder of an instrument rating:

- a) pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;
- b) pre-flight inspection, use of checklists, taxiing and pre-take-off checks;
- c) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:
 - transition to instrument flight on take-off;
 - standard instrument departures and arrivals;
 - en-route IFR procedures;
 - holding procedures;
 - instrument approaches to specified minima;
 - missed approach procedures;
 - landings from instrument approaches;
- d) in-flight manoeuvres and particular flight characteristics; and
- e) if appropriate, operation of a multi-engined helicopter solely by reference to instruments with one engine inoperative or simulated inoperative.

2.10.1.4 *Skill*

The applicant shall have demonstrated the ability to perform the procedures and manoeuvres specified in 2.10.1.3 with a degree of competency appropriate to the privileges granted to the holder of an instrument rating — helicopter, and to:

- a) operate the helicopter within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the helicopter at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

Note.— Attention is called to 2.1.6 on the use of synthetic flight trainers for demonstrations of skill.

2.10.1.5 *Medical fitness*

2.10.1.5.1 Applicants who hold a private pilot licence shall have established their hearing acuity on the basis of compliance with the hearing requirements for the issue of a Class 1 Medical Assessment.

2.10.1.5.2 **Recommendation.**— *Contracting States should consider requiring the holder of a private pilot licence to comply with the physical and mental, and visual requirements for the issue of a Class 1 Medical Assessment.*

2.10.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of an instrument rating — helicopter shall be to pilot helicopters under IFR.

2.10.3 Exercise of joint privileges of the instrument rating — aeroplane and the instrument rating — helicopter

The privileges given in 2.6.2 and 2.10.2 may be conferred by a single instrument rating in lieu of issuing separate instrument ratings for aeroplanes and helicopters provided that the requirements for the issue of both ratings, as specified in 2.6 and 2.10, have been met.

2.11 **Flight instructor rating appropriate to aeroplanes and helicopters**

2.11.1 Requirements for the issue of the rating

2.11.1.1 *Knowledge*

The applicant shall have met the knowledge requirements for the issue of a commercial pilot licence as specified in 2.4.1.2

or 2.8.1.2 as appropriate. In addition, the applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight instructor rating, in at least the following areas:

- a) techniques of applied instruction;
- b) assessment of student performance in those subjects in which ground instruction is given;
- c) the learning process;
- d) elements of effective teaching;
- e) student evaluation and testing, training philosophies;
- f) training programme development;
- g) lesson planning;
- h) classroom instructional techniques;
- i) use of training aids;
- j) analysis and correction of student errors;
- k) human performance relevant to flight instruction; and

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

- l) hazards involved in simulating system failures and malfunctions in the aircraft.

2.11.1.2 Experience

The applicant shall have met the experience requirements for the issue of a commercial pilot licence as specified in 2.4.1.3 or 2.8.1.3, as appropriate.

2.11.1.3 Flight instruction

The applicant shall, under the supervision of a flight instructor accepted by the Licensing Authority for that purpose:

- a) have received instruction in flight instructional techniques including demonstration, student practices, recognition and correction of common student errors; and
- b) have practised instructional techniques in those flight manoeuvres and procedures in which it is intended to provide flight instruction.

2.11.1.4 Skill

The applicant shall have demonstrated, in the category of aircraft for which flight instructor privileges are sought, the

ability to instruct in those areas in which flight instruction is to be given, including pre-flight, post-flight and ground instruction as appropriate.

2.11.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5 and 2.1, the privileges of the holder of a flight instructor rating shall be:

- a) to supervise solo flights by student pilots; and
- b) to carry out flight instruction for the issue of a private pilot licence, a commercial pilot licence, an instrument rating, and a flight instructor rating

provided that the flight instructor:

- 1) holds at least the licence and rating for which instruction is being given, in the appropriate aircraft category;
- 2) holds the licence and rating necessary to act as the pilot-in-command of the aircraft on which the instruction is given; and
- 3) has the flight instructor privileges granted entered on the licence.

2.12 Glider pilot licence

2.12.1 Requirements for the issue of the licence

2.12.1.1 Age

The applicant shall be not less than 16 years of age.

2.12.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a glider pilot licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a glider pilot licence; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation of glider systems and instruments;

- c) operating limitations of gliders; relevant operational information from the flight manual or other appropriate document;

Flight performance and planning

- d) effects of loading and mass distribution on flight characteristics; mass and balance considerations;
- e) use and practical application of launching, landing and other performance data;
- f) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

Human performance

- g) human performance relevant to the glider pilot;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- h) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

Navigation

- i) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

Operational procedures

- j) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- k) different launch methods and associated procedures;
- l) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather and wake turbulence and other operating hazards;

Principles of flight

- m) principles of flight relating to gliders.

2.12.1.2.1 Recommendation.— *The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a glider pilot licence, in radiotelephony procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.*

2.12.1.3 Experience

2.12.1.3.1 The applicant shall have completed not less than six hours of flight time as a pilot of gliders including two hours' solo flight time during which not less than 20 launches and landings have been performed.

2.12.1.3.1.1 When the applicant has flight time as a pilot of aeroplanes, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.12.1.3.1 can be reduced accordingly.

2.12.1.3.2 The applicant shall have gained, under appropriate supervision, operational experience in gliders in at least the following areas:

- a) pre-flight operations, including glider assembly and inspection;
- b) techniques and procedures for the launching method used, including appropriate airspeed limitations, emergency procedures and signals used;
- c) traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the glider by external visual reference;
- e) flight throughout the flight envelope;
- f) recognition of, and recovery from, incipient and full stalls and spiral dives;
- g) normal and cross-wind launches, approaches and landings;
- h) cross-country flying using visual reference and dead reckoning;
- i) emergency procedures.

2.12.1.4 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of a glider, the procedures and manoeuvres described in 2.12.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a glider pilot licence, and to:

- a) operate the glider within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and

- e) maintain control of the glider at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.12.1.5 Medical fitness

The applicant shall hold a current Class 2 Medical Assessment.

2.12.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.12.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a glider pilot licence shall be to act as pilot-in-command of any glider provided the licence holder has operational experience in the launching method used.

2.12.2.2 **Recommendation.**— *If passengers are to be carried, the licence holder should have completed not less than 10 hours of flight time as a pilot of gliders.*

2.13 Free balloon pilot licence

Note.— *The provisions of the free balloon pilot licence apply to free balloons using hot air or gas.*

2.13.1 Requirements for the issue of the licence

2.13.1.1 Age

The applicant shall be not less than 16 years of age.

2.13.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a free balloon pilot licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a free balloon pilot licence; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation of free balloon systems and instruments;

- c) operating limitations of free balloons; relevant operational information from the flight manual or other appropriate document;
- d) physical properties and practical application of gases used in free balloons;

Flight performance and planning

- e) effects of loading on flight characteristics; mass calculations;
- f) use and practical application of launching, landing and other performance data, including the effect of temperature;
- g) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

Human performance

- h) human performance relevant to the free balloon pilot;

Note.— *Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).*

Meteorology

- i) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

Navigation

- j) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

Operational procedures

- k) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- l) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

Principles of flight

- m) principles of flight relating to free balloons.

2.13.1.2.1 **Recommendation.**— *The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a free balloon pilot*

licence, in radiotelephony procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.

2.13.1.3 Experience

2.13.1.3.1 The applicant shall have completed not less than 16 hours of flight time as a pilot of free balloons including at least eight launches and ascents of which one must be solo.

2.13.1.3.2 The applicant shall have gained, under appropriate supervision, operational experience in free balloons in at least the following areas:

- a) pre-flight operations, including balloon assembly, rigging, inflation, mooring and inspection;
- b) techniques and procedures for the launching and ascent, including appropriate limitations, emergency procedures and signals used;
- c) collision avoidance precautions;
- d) control of a free balloon by external visual reference;
- e) recognition of, and recovery from, rapid descents;
- f) cross-country flying using visual reference and dead reckoning;
- g) approaches and landings, including ground handling;
- h) emergency procedures.

2.13.1.3.3 If the privileges of the licence are to be exercised at night, the applicant shall have gained, under appropriate supervision, operational experience in free balloons in night flying.

2.13.1.4 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of a free balloon, the procedures and manoeuvres described in 2.13.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a free balloon pilot licence, and to:

- a) operate the free balloon within its limitations;
- b) complete all manoeuvres with smoothness and accuracy;
- c) exercise good judgement and airmanship;
- d) apply aeronautical knowledge; and
- e) maintain control of the free balloon at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

2.13.1.5 Medical fitness

The applicant shall hold a current Class 2 Medical Assessment.

2.13.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.13.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of a free balloon pilot licence shall be to act as pilot-in-command of any free balloon provided that the licence holder has operational experience in hot air or gas balloons as appropriate.

2.13.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.13.1.3.3.

CHAPTER 3. LICENCES FOR FLIGHT CREW MEMBERS OTHER THAN LICENCES FOR PILOTS

3.1 General rules concerning flight navigator and flight engineer licences

3.1.1 An applicant shall, before being issued with a flight navigator licence or a flight engineer licence, meet such requirements in respect of age, knowledge, experience, skill and medical fitness as are specified for those licences.

3.1.1.1 An applicant for a flight navigator licence or a flight engineer licence shall demonstrate such requirements for knowledge and skill as are specified for those licences, in a manner determined by the Licensing Authority.

3.2 Flight navigator licence

3.2.1 Requirements for the issue of the licence

3.2.1.1 Age

The applicant shall be not less than 18 years of age.

3.2.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight navigator licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a flight navigator licence; appropriate air traffic services practices and procedures;

Flight performance and planning

- b) effects of loading and mass distribution on aircraft performance;
- c) use of take-off, landing and other performance data including procedures for cruise control;
- d) pre-flight and en-route operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;

Human performance

- e) human performance relevant to the flight navigator;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- f) interpretation and practical application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- g) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;

Navigation

- h) dead-reckoning, pressure-pattern and celestial navigation procedures; the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- i) use, limitation and serviceability of avionics and instruments necessary for the navigation of the aircraft;
- j) use, accuracy and reliability of navigation systems used in departure, en-route and approach phases of flight; identification of radio navigation aids;
- k) principles, characteristics and use of self-contained and external-referenced navigation systems; operation of airborne equipment;
- l) the celestial sphere including the movement of heavenly bodies and their selection and identification for the purpose of observation and reduction of sights; calibration of sextants; the completion of navigation documentation;
- m) definitions, units and formulae used in air navigation;

Operational procedures

- n) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes, abbreviations, and instrument procedure charts for departure, en-route, descent and approach;

Principles of flight

- o) principles of flight;

Radiotelephony

- p) radiotelephony procedures and phraseology.

3.2.1.3 *Experience*

3.2.1.3.1 The applicant shall have completed in the performance of the duties of a flight navigator, not less than 200 hours of flight time acceptable to the Licensing Authority, in aircraft engaged in cross-country flights, including not less than 30 hours by night.

3.2.1.3.1.1 When the applicant has flight time as a pilot, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 3.2.1.3.1 can be reduced accordingly.

3.2.1.3.2 The applicant shall produce evidence of having satisfactorily determined the aircraft's position in flight, and used that information to navigate the aircraft, as follows:

- a) by night — not less than 25 times by celestial observations; and
- b) by day — not less than 25 times by celestial observations in conjunction with self-contained or external-referenced navigation systems.

3.2.1.4 *Skill*

The applicant shall have demonstrated the ability to perform as flight navigator of an aircraft with a degree of competency appropriate to the privileges granted to the holder of a flight navigator licence, and to:

- a) exercise good judgement and airmanship;
- b) apply aeronautical knowledge;
- c) perform all duties as part of an integrated crew; and
- d) communicate effectively with the other flight crew members.

3.2.1.5 *Medical fitness*

The applicant shall hold a current Class 1 Medical Assessment.

3.2.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5 and 1.2.6, the privileges of the holder of a flight navigator licence shall be to act as flight navigator of any aircraft.

3.3 Flight engineer licence

3.3.1 Requirements for the issue of the licence

3.3.1.1 *Age*

The applicant shall be not less than 18 years of age.

3.3.1.2 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight engineer licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a flight engineer licence; rules and regulations governing the operation of civil aircraft pertinent to the duties of a flight engineer;

Aircraft general knowledge

- b) basic principles of powerplants, gas turbines and/or piston engines; characteristics of fuels, fuel systems including fuel control; lubricants and lubrication systems; afterburners and injection systems, function and operation of engine ignition and starter systems;
- c) principles of operation, handling procedures and operating limitations of aircraft powerplants; effects of atmospheric conditions on engine performance;
- d) airframes, flight controls, structures, wheel assemblies, brakes and anti-skid units, corrosion and fatigue life; identification of structural damage and defects;
- e) ice and rain protection systems;
- f) pressurization and air-conditioning systems, oxygen systems;
- g) hydraulic and pneumatic systems;
- h) basic electrical theory, electric systems (AC and DC), aircraft wiring systems, bonding and screening;

- i) principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;
- j) limitations of appropriate aircraft;
- k) fire protection, detection, suppression and extinguishing systems;
- l) use and serviceability checks of equipment and systems of appropriate aircraft;

Flight performance and planning

- m) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- n) use and practical application of performance data including procedures for cruise control;

Human performance

- o) human performance relevant to the flight engineer;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Operational procedures

- p) principles of maintenance, procedures for the maintenance of airworthiness, defect reporting, pre-flight inspections, precautionary procedures for fuelling and use of external power; installed equipment and cabin systems;
- q) normal, abnormal and emergency procedures;
- r) operational procedures for carriage of freight and dangerous goods;

Principles of flight

- s) fundamentals of aerodynamics;

Radiotelephony

- t) radiotelephony procedures and phraseology.

3.3.1.2.1 Recommendation.— *The applicant should have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight engineer licence in at least the following subjects:*

- a) *fundamentals of navigation; principles and operation of self-contained systems; and*
- b) *operational aspects of meteorology.*

3.3.1.3 Experience

3.3.1.3.1 The applicant shall have completed, under the supervision of a person accepted by the Licensing Authority for that purpose, not less than 100 hours of flight time in the performance of the duties of a flight engineer. The Licensing Authority shall determine whether experience as a flight engineer in a flight simulator, which it has approved, is acceptable as part of the total flight time of 100 hours. Credit for such experience shall be limited to a maximum of 50 hours.

3.3.1.3.1.1 When the applicant has flight time as a pilot, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 3.3.1.3.1 can be reduced accordingly.

3.3.1.3.2 The applicant shall have operational experience in the performance of the duties of a flight engineer, under the supervision of a flight engineer accepted by the Licensing Authority for that purpose, in at least the following areas:

a) Normal procedures

- pre-flight inspections
- fuelling procedures, fuel management
- inspection of maintenance documents
- normal flight deck procedures during all phases of flight
- crew coordination and procedures in case of crew incapacitation
- defect reporting

b) Abnormal and alternate (standby) procedures

- recognition of abnormal functioning of aircraft systems
- use of abnormal and alternate (standby) procedures

c) Emergency procedures

- recognition of emergency conditions
- use of appropriate emergency procedures

3.3.1.4 Skill

The applicant shall have demonstrated the ability to perform as flight engineer of an aircraft, the duties and procedures described in 3.3.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a flight engineer licence, and to:

- a) use aircraft systems within the aircraft's capabilities and limitations;
- b) exercise good judgement and airmanship;
- c) apply aeronautical knowledge;

- d) perform all the duties as part of an integrated crew with the successful outcome never in doubt; and
- e) communicate effectively with the other flight crew members.

3.3.1.4.1 The use of a synthetic flight trainer for performing any of the procedures required during the demonstration of skill described in 3.3.1.4 shall be approved by the Licensing Authority, which shall ensure that the synthetic flight trainer is appropriate to the task.

3.3.1.5 Medical fitness

The applicant shall hold a current Class 1 Medical Assessment.

3.3.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

3.3.2.1 Subject to compliance with the requirements specified in 1.2.5 and 1.2.6, the privileges of the holder of a flight engineer licence shall be to act as flight engineer of any type of aircraft on which the holder has demonstrated a level of knowledge and skill, as determined by the Licensing

Authority on the basis of those requirements specified in 3.3.1.2 and 3.3.1.4 which are applicable to the safe operation of that type of aircraft.

3.3.2.2 The types of aircraft on which the holder of a flight engineer licence is authorized to exercise the privileges of that licence, shall be either entered on the licence or recorded elsewhere in a manner acceptable to the Licensing Authority.

3.4 Flight radiotelephone operator

Note 1.— Where the knowledge and skill of an applicant have been established as satisfactory in respect of the certification requirements for the radiotelephone operator's restricted certificate specified in the general radio regulations annexed to the International Telecommunication Convention and the applicant has met the requirements that are pertinent to the operation of the radiotelephone on board an aircraft, a Contracting State may endorse a licence already held by the applicant (as provided for in 5.1.1 XIII) or issue a separate licence as appropriate.

Note 2.— Skill and knowledge requirements on radiotelephony procedures and phraseology have been developed as an integral part of all pilot aeroplane and helicopter licences.

CHAPTER 4. LICENCES AND RATINGS FOR PERSONNEL OTHER THAN FLIGHT CREW MEMBERS

4.1 General rules concerning licences and ratings for personnel other than flight crew members

4.1.1 An applicant shall, before being issued with any licence or rating for personnel other than flight crew members, meet such requirements in respect of age, knowledge, experience and where appropriate, medical fitness and skill, as are specified for that licence or rating.

4.1.2 An applicant, for any licence or rating for personnel other than flight crew members, shall demonstrate, in a manner determined by the Licensing Authority, such requirements in respect of knowledge and skill as are specified for that licence or rating.

4.2 Aircraft maintenance (technician/engineer/mechanic)

Note.— The terms in brackets are given as acceptable additions to the title of the licence. Each Contracting State is expected to use in its own regulations the one it prefers.

4.2.1 Requirements for the issue of the licence

4.2.1.1 Age

The applicant shall be not less than 18 years of age.

4.2.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of an aircraft maintenance licence holder, in at least the following subjects:

Air law and airworthiness requirements

- a) rules and regulations relevant to an aircraft maintenance licence holder including applicable airworthiness requirements governing certification and continuing airworthiness of aircraft and approved aircraft maintenance organization and procedures;

Natural science and aircraft general knowledge

- b) basic mathematics; units of measurement; fundamental principles and theory of physics and chemistry applicable to aircraft maintenance;

Aircraft engineering

- c) characteristics and applications of the materials of aircraft construction including principles of construction and functioning of aircraft structures, fastening techniques; powerplants and their associated systems; mechanical, fluid, electrical and electronic power sources; aircraft instrument and display systems; aircraft control systems; and airborne navigation and communication systems;

Aircraft maintenance

- d) tasks required to ensure the continuing airworthiness of an aircraft including methods and procedures for the overhaul, repair, inspection, replacement, modification or defect rectification of aircraft structures, components and systems in accordance with the methods prescribed in the relevant Maintenance Manuals and the applicable Standards of airworthiness; and

Human performance and limitations

- e) human performance and limitations relevant to the duties of an aircraft maintenance licence holder.

4.2.1.3 Experience

The applicant shall have had the following experience in the inspection, servicing and maintenance of aircraft or its components:

- a) for the issue of a licence with privileges for the aircraft in its entirety, at least:
 - 1) four years; or
 - 2) two years if the applicant has satisfactorily completed an approved training course; and
- b) for the issue of a licence with privileges restricted in accordance with 4.2.2.2 a) 2) or 3), a period of time

that will enable a level of competency equivalent to that required in a) to be attained, provided that this is not less than:

- 1) two years; or
- 2) such a period as the State considers necessary to provide an equivalent level of practical experience to applicants who have satisfactorily completed an approved training course.

4.2.1.4 Training

Recommendation.— *The applicant should have completed a course of training appropriate to the privileges to be granted.*

Note.— *The Training Manual (Doc 7192), Part D-1 contains guidance material on a training course for applicants for an aircraft maintenance licence.*

4.2.1.5 Skill

The applicant shall have demonstrated the ability to perform those functions applicable to the privileges to be granted.

4.2.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

4.2.2.1 Subject to compliance with the requirements specified in 4.2.2.2 and 4.2.2.3, the privileges of the holder of an aircraft maintenance licence shall be to certify the aircraft or parts of the aircraft as airworthy after an authorized repair, modification or installation of a powerplant, accessory, instrument, and/or item of equipment, and to sign a maintenance release following inspection, maintenance operations and/or routine servicing.

4.2.2.2 The privileges of the holder of an aircraft maintenance licence specified in 4.2.2.1 shall be exercised only:

- a) in respect of such:
 - 1) aircraft as are entered on the licence in their entirety either specifically or under broad categories; or
 - 2) airframes and powerplants and aircraft systems or components as are entered on the licence either specifically or under broad categories; and/or
 - 3) aircraft avionic systems or components as are entered on the licence either specifically or under broad categories;

- b) provided that the licence holder is familiar with all the relevant information relating to the maintenance and airworthiness of the particular aircraft for which the licence holder is signing a Maintenance Release, or such airframe, powerplant, aircraft system or component and aircraft avionic system or component which the licence holder is certifying as being airworthy; and
- c) on condition that, within the preceding 24 months, the licence holder has either had experience in the inspection, servicing or maintenance of an aircraft or components in accordance with the privileges granted by the licence held for not less than six months, or has met the provision for the issue of a licence with the appropriate privileges, to the satisfaction of the Licensing Authority.

4.2.2.3 A Contracting State shall prescribe the scope of the privileges of the licence holder in terms of the complexity of the tasks to which the certification relates.

4.2.2.3.1 **Recommendation.**— *Details of the certification privileges should be endorsed on or attached to the licence, either directly or by reference to another document issued by the Contracting State.*

4.2.2.4 When a Contracting State authorizes an approved maintenance organization to appoint non-licensed personnel to exercise the privileges of 4.2.2, the person appointed shall meet the requirements specified in 4.2.1.

4.3 Air traffic controller licence

4.3.1 Requirements for the issue of the licence

Before issuing an air traffic controller licence, a Contracting State shall require the applicant to meet the requirements of 4.3.1 and the requirements of at least one of the ratings set out in 4.4. Unlicensed State employees may operate as air traffic controllers on condition that they meet the same requirements.

4.3.1.1 Age

The applicant shall be not less than 21 years of age.

4.3.1.2 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the holder of an air traffic controller licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the air traffic controller;

Air traffic control equipment

- b) principles, use and limitations of equipment used in air traffic control;

General knowledge

- c) principles of flight; principles of operation and functioning of aircraft, powerplants and systems; aircraft performances relevant to air traffic control operations;

Human performance

- d) human performance relevant to air traffic control;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Language

- e) the language or languages nationally designated for use in air traffic control and ability to speak such language or languages without accent or impediment which would adversely affect radio communication;

Meteorology

- f) aeronautical meteorology; use and appreciation of meteorological documentation and information; origin and characteristics of weather phenomena affecting flight operations and safety; altimetry;

Navigation

- g) principles of air navigation; principle, limitation and accuracy of navigation systems and visual aids; and

Operational procedures

- h) air traffic control, communication, radiotelephony and phraseology procedures (routine, non routine and emergency); use of the relevant aeronautical documentation; safety practices associated with flight.

4.3.1.3 *Experience*

The applicant shall have completed an approved training course and not less than three months' satisfactory service engaged in the actual control of air traffic under the supervision of an appropriately rated air traffic controller. The

experience requirements specified for air traffic controller ratings in 4.4 may be credited as part of the experience specified in this paragraph.

4.3.1.4 *Medical fitness*

The applicant shall hold a current Class 3 Medical Assessment.

4.4 Air traffic controller ratings

4.4.1 Categories of air traffic controller ratings

4.4.1.1 Air traffic controller ratings shall comprise the following categories:

- a) aerodrome control rating;
- b) approach control rating;
- c) approach radar control rating;
- d) approach precision radar control rating;
- e) area control rating; and
- f) area radar control rating.

Note.— The World Meteorological Organization has specified requirements for personnel making meteorological observations which apply to air traffic controllers providing such a service.

4.4.2 Requirements for air traffic controller ratings

4.4.2.1 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted, in at least the following subjects in so far as they affect the area of responsibility:

- a) *aerodrome control rating:*
 - 1) aerodrome layout; physical characteristics and visual aids;
 - 2) airspace structure;
 - 3) applicable rules, procedures and source of information;
 - 4) air navigation facilities;

- 5) air traffic control equipment and its use;
 - 6) terrain and prominent landmarks;
 - 7) characteristics of air traffic;
 - 8) weather phenomena; and
 - 9) emergency and search and rescue plans;
 - b) *approach control and area control ratings*:
 - 1) airspace structure;
 - 2) applicable rules, procedures and source of information;
 - 3) air navigation facilities;
 - 4) air traffic control equipment and its use;
 - 5) terrain and prominent landmarks;
 - 6) characteristics of air traffic and traffic flow;
 - 7) weather phenomena; and
 - 8) emergency and search and rescue plans; and
 - c) *approach radar, approach precision radar and area radar control ratings*: The applicant shall meet the requirements specified in b) in so far as they affect the area of responsibility, and shall have demonstrated a level of knowledge appropriate to the privileges granted, in at least the following additional subjects:
 - 1) principles, use and limitations of radar, other surveillance systems and associated equipment; and
 - 2) procedures for the provision of approach, precision approach or area radar control services, as appropriate, including procedures to ensure appropriate terrain clearance.
- 2) *approach, approach radar, area or area radar control rating*: the control service for which the rating is sought, for a period of not less than 180 hours or three months, whichever is greater, at the unit for which the rating is sought; and
 - 3) *approach precision radar control rating*: not less than 200 precision approaches of which not more than 100 shall have been carried out on a radar simulator approved for that purpose by the Licensing Authority. Not less than 50 of those precision approaches shall have been carried out at the unit and on the equipment for which the rating is sought; and
 - c) if the privileges of the approach radar control rating include surveillance radar approach duties, the experience shall include not less than 25 plan position indicator (PPI) approaches on the surveillance equipment of the type in use at the unit for which the rating is sought and under the supervision of an appropriately rated approach radar controller.

4.4.2.2.2 The experience specified in 4.4.2.2.1 b) shall have been completed within the 6-month period immediately preceding application.

4.4.2.2.3 When the applicant already holds an air traffic controller rating in another category, or the same rating for another unit, the Licensing Authority shall determine whether the experience requirement of 4.4.2.2 can be reduced, and if so, to what extent.

4.4.2.3 Skill

The applicant shall have demonstrated, at a level appropriate to the privileges being granted, the skill, judgement and performance required to provide a safe, orderly and expeditious control service.

4.4.2.4 Concurrent issuance of two air traffic controller ratings

When two air traffic controller ratings are sought concurrently, the Licensing Authority shall determine the applicable requirements on the basis of the requirements for each rating. These requirements shall not be less than those of the more demanding rating.

4.4.3 Privileges of the holder of the air traffic controller rating(s) and the conditions to be observed in exercising such privileges

4.4.3.1 Subject to compliance with the requirements specified in 1.2.5 and 1.2.6, the privileges of the holder of an air traffic controller licence endorsed with one or more of the undermentioned ratings shall be:

4.4.2.2 Experience

4.4.2.2.1 The applicant shall have:

- a) satisfactorily completed an approved training course;
- b) provided, satisfactorily, under the supervision of an appropriately rated air traffic controller:
 - 1) *aerodrome control rating*: an aerodrome control service, for a period of not less than 90 hours or one month, whichever is greater, at the unit for which the rating is sought;

- a) *aerodrome control rating*: to provide or to supervise the provision of aerodrome control service for the aerodrome for which the licence holder is rated;
- b) *approach control rating*: to provide or to supervise the provision of approach control service for the aerodrome or aerodromes for which the licence holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service;
- c) *approach radar control rating*: to provide and/or supervise the provision of approach control service with the use of radar or other surveillance systems for the aerodrome or aerodromes for which the licence holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service;
 - 1) subject to compliance with the provisions of 4.4.2.2.1 c), the privileges shall include the provision of surveillance radar approaches;
- d) *approach precision radar control rating*: to provide and/or supervise the provision of precision approach radar service at the aerodrome for which the licence holder is rated;
- e) *area control rating*: to provide and/or supervise the provision of area control service within the control area or portion thereof, for which the licence holder is rated; and
- f) *area radar control rating*: to provide and/or supervise the provision of area control service with the use of radar, within the control area or portion thereof, for which the licence holder is rated.

4.4.3.2 Before exercising the privileges indicated in 4.4.3.1, the licence holder shall be familiar with all pertinent and current information.

4.4.3.3 A Contracting State having issued an air traffic controller licence shall not permit the holder thereof to carry out instruction in an operational environment unless such holder has received proper authorization from such Contracting State.

4.4.3.4 *Validity of ratings*

A rating shall become invalid when an air traffic controller has ceased to exercise the privileges of the rating for a period determined by the Licensing Authority. That period shall not exceed six months. A rating shall remain invalid until the controller's ability to exercise the privileges of the rating has been re-established.

4.5 Flight operations officer/flight dispatcher licence

4.5.1 Requirements for the issue of the licence

4.5.1.1 *Age*

The applicant shall be not less than 21 years of age.

4.5.1.2 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight operations officer licence, in at least the following subjects:

Air law

- a) rules and regulations relevant to the holder of a flight operations officer licence; appropriate air traffic services practices and procedures;

Aircraft general knowledge

- b) principles of operation of aeroplane powerplants, systems and instruments;
- c) operating limitations of aeroplanes and powerplants;
- d) minimum equipment list;

Flight performance calculation and planning procedures

- e) effects of loading and mass distribution on aircraft performance and flight characteristics; mass and balance calculations;
- f) operational flight planning; fuel consumption and endurance calculations; alternate airport selection procedures; en-route cruise control; extended range operation;
- g) preparation and filing of air traffic services flight plans;
- h) basic principles of computer-assisted planning systems;

Human performance

- i) human performance relevant to dispatch duties;

Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).

Meteorology

- j) aeronautical meteorology; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
- k) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information;

Navigation

- l) principles of air navigation with particular reference to instrument flight;

Operational procedures

- m) use of aeronautical documentation;
- n) operational procedures for the carriage of freight and dangerous goods;
- o) procedures relating to aircraft accidents and incidents; emergency flight procedures;
- p) procedures relating to unlawful interference and sabotage of aircraft;

Principles of flight

- q) principles of flight relating to the appropriate category of aircraft; and

Radio communication

- r) procedures for communicating with aircraft and relevant ground stations.

4.5.1.3 *Experience*

4.5.1.3.1 The applicant shall have gained the following experience:

- a) a total of two years' service in any one or in any combination of the capacities specified in 1) to 3) inclusive, provided that in any combination of experience the period serviced in any capacity shall be at least one year:
 - 1) a flight crew member in air transportation; or
 - 2) a meteorologist in an organization dispatching aircraft in air transportation; or
 - 3) an air traffic controller; or a technical supervisor of flight operations officers or air transportation flight operations systems;

or

- b) at least one year as an assistant in the dispatching of air transport;

or

- c) have satisfactorily completed a course of approved training.

4.5.1.3.2 The applicant shall have served under the supervision of a flight operations officer for at least 90 working days within the six months immediately preceding the application.

4.5.1.4 *Skill*

The applicant shall have demonstrated the ability to:

- a) make an accurate and operationally acceptable weather analysis from a series of daily weather maps and weather reports; provide an operationally valid briefing on weather conditions prevailing in the general neighbourhood of a specific air route; forecast weather trends pertinent to air transportation with particular reference to destination and alternates;
- b) determine the optimum flight path for a given segment, and create accurate manual and/or computer generated flight plans; and
- c) provide operating supervision and all other assistance to a flight in actual or simulated adverse weather conditions, as appropriate to the duties of the holder of a flight operations officer licence.

4.5.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

Subject to compliance with the requirements specified in 1.2.5, the privileges of the holder of a flight operations officer licence shall be to serve in that capacity with responsibility for each area for which the applicant meets the requirements specified in Annex 6.

4.6 Aeronautical station operator licence

Note.— This licence is not intended for personnel providing Aerodrome Flight Information Service (AFIS). Guidance on the qualifications to be met by these personnel can be found in Circular 211, Aerodrome Flight Information Service (AFIS).

4.6.1 Requirements for the issue of the licence

4.6.1.1 Before issuing an aeronautical station operator licence, a Contracting State shall require the applicant to meet the requirements of 4.6.1. Unlicensed individuals may operate as aeronautical station operators on the condition that the State from which they operate ensures that they meet the same requirements.

4.6.1.2 Age

The applicant shall be not less than 18 years of age.

4.6.1.3 Knowledge

The applicant shall have demonstrated a level of knowledge appropriate to the holder of an aeronautical station operator, in at least the following subjects:

General knowledge

- a) air traffic services provided within the State;

Language

- b) the language or languages nationally designated for use in air-ground communications and ability to speak such language or languages without accent or impediment which would adversely affect radio communication;

Operational procedures

- c) radiotelephony procedures; phraseology; telecommunication network;

Rules and regulations

- d) rules and regulations applicable to the aeronautical station operator; and

Telecommunication equipment

- e) principles, use and limitations of telecommunication equipment in an aeronautical station.

4.6.1.4 Experience

4.6.1.4.1 The applicant shall have:

- a) satisfactorily completed an approved training course within the 12-month period immediately preceding application, and have served satisfactorily under a qualified aeronautical station operator for not less than two months; or
- b) satisfactorily served under a qualified aeronautical station operator for not less than six months during the 12-month period immediately preceding application.

4.6.1.5 Skill

The applicant shall demonstrate, or have demonstrated, competency in:

- a) operating the telecommunication equipment in use; and
- b) transmitting and receiving radiotelephony messages with efficiency and accuracy.

4.6.2 Privileges of the aeronautical station operator and the conditions to be observed in exercising such privileges

4.6.2.1 Subject to compliance with the requirements specified in 1.2.5, the privileges of the holder of an aeronautical station operator licence shall be to act as an operator in an aeronautical station. Before exercising the privileges of the licence, the holder shall be familiar with all pertinent and current information regarding the types of equipment and operating procedures used at that aeronautical station.

CHAPTER 5. SPECIFICATIONS FOR PERSONNEL LICENCES

5.1 Personnel licences issued by a Contracting State in accordance with the relevant provisions of this Annex shall conform to the following specifications:

5.1.1 Detail

The following details shall appear on the licence:

- I) Name of State (in bold type);
- II) Title of licence (in very bold type);
- III) Serial number of the licence, in arabic numerals, given by the authority issuing the licence;
- IV) Name of holder in full (in roman alphabet also if script of national language is other than roman);
- IVa) Date of birth;
- V) Address of holder;
- VI) Nationality of holder;
- VII) Signature of holder;
- VIII) Authority and, where necessary, conditions under which the licence is issued;
- IX) Certification concerning validity and authorization for holder to exercise privileges appropriate to licence;
- X) Signature of officer issuing the licence and the date of such issue;
- XI) Seal or stamp of authority issuing the licence;
- XII) Ratings, e.g. category, class, type of aircraft, airframe, aerodrome control, etc.;
- XIII) Remarks, i.e. special endorsements relating to limitations and endorsements for privileges;
- XIV) Any other details desired by the State issuing the licence.

5.1.2 Material

First quality paper or other suitable material shall be used and the items mentioned in 5.1.1 shown clearly thereon.

5.1.3 Colour

5.1.3.1 Where the same coloured material is used for all licences issued by a Contracting State, that colour shall be white.

5.1.3.2 Where licences issued by a Contracting State carry a distinguishing colour marking, the colours shall be as follows:

- | | |
|--|---|
| a) private pilot — aeroplane | — light brown |
| b) commercial pilot — aeroplane | — light blue |
| c) airline transport pilot — aeroplane | — dark green |
| d) private pilot — helicopter | — light grey |
| e) commercial pilot — helicopter | — dark grey |
| f) airline transport pilot — helicopter | — two or more dark grey stripes on white background |
| g) glider pilot | — pink |
| h) free balloon pilot | — violet |
| i) flight navigator | — red |
| j) flight engineer | — brown |
| k) aircraft maintenance (technician/engineer/mechanic) | — maroon |
| l) air traffic controller | — yellow |
| m) flight operations officer | — light green |
| n) aeronautical station operator | — two or more orange stripes on white background |

5.1.4 Language

When licences are issued in a language other than English, the licence shall include an English translation of at least items I), II), VI), IX), XII), XIII) and XIV). When provided in a language other than English, authorizations issued in accordance with 1.2.2.1 shall include an English translation of the name of the State issuing the authorization, the limit of validity of the authorization and any restriction or limitation that may be established.

5.1.5 Arrangement of items

Item headings on the licence shall be uniformly numbered in roman numerals as indicated in 5.1.1, so that on any licence the number will, under any arrangement, refer to the same item heading.

Note.— Item headings may be arranged in such order as may best suit the convenience of the Contracting State issuing the licence.

CHAPTER 6. MEDICAL PROVISIONS FOR LICENSING

Note 1.— Guidance material to assist Licensing Authorities and medical examiners is published separately in the current edition of the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— The Standards and Recommended Practices established in this Chapter cannot, on their own, be sufficiently detailed to cover all possible individual situations. Of necessity many decisions relating to the evaluation of medical fitness must be left to the judgement and discretion of the individual designated medical examiner. The evaluation must, therefore, be based on a medical examination conducted throughout in accordance with the high standards of medical practice. Due regard must be given to the privileges granted by the licence applied for or held by the applicant for the Medical Assessment, and the conditions under which the licence holder is going to exercise those privileges in carrying out assigned duties.

Note 3.— Attention is called to the administrative clause in 1.2.4.8 dealing with accredited medical conclusion.

6.1 Medical Assessments — General

6.1.1 Classes of Medical Assessment

Three classes of Medical Assessment shall be established as follows:

a) Class 1 Medical Assessment;

applies to applicants for, and holders of:

- commercial pilot licences — aeroplane and helicopter
- airline transport pilot licences — aeroplane and helicopter
- flight navigator licences
- flight engineer licences

b) Class 2 Medical Assessment;

applies to applicants for, and holders of:

- private pilot licences — aeroplane and helicopter
- glider pilot licences
- free balloon pilot licences

c) Class 3 Medical Assessment;

applies to applicants for, and holders of:

— air traffic controller licences.

6.1.2 The applicant for a Medical Assessment shall provide the medical examiner with a personally certified statement of medical facts concerning personal, familial and hereditary history. The applicant shall be made aware of the necessity for giving a statement that is as complete and accurate as the applicant's knowledge permits, and any false statement shall be dealt with in accordance with 1.2.4.5.1.

6.1.3 The medical examiner shall report to the Licensing Authority any individual case where, in the examiner's judgement, an applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licence being applied for, or held, is not likely to jeopardize flight safety (1.2.4.8).

6.1.4 The requirements to be met for the renewal of a Medical Assessment are the same as those for the initial assessment except where otherwise specifically stated.

Note.— The intervals between routine medical examinations for the purpose of renewing Medical Assessments are specified in 1.2.5.2.

6.2 Requirements for Medical Assessments

6.2.1 General

An applicant for a Medical Assessment issued in accordance with the terms of 1.2.4.1 shall undergo a medical examination based on the following requirements:

- a) physical and mental;
- b) visual and colour perception; and
- c) hearing.

6.2.2 Physical and mental requirements

An applicant for any class of Medical Assessment shall be required to be free from:

- a) any abnormality, congenital or acquired; or
- b) any active, latent, acute or chronic disability; or
- c) any wound, injury or sequelae from operation; or
- d) any effect or side-effect of any prescribed or non-prescribed therapeutic medication taken;

such as would entail a degree of functional incapacity which is likely to interfere with the safe operation of an aircraft or with the safe performance of duties.

6.2.3 Visual acuity test requirements

The methods in use for the measurement of visual acuity are likely to lead to differing evaluations. To achieve uniformity, therefore, Contracting States shall ensure that equivalence in the methods of evaluation be obtained.

6.2.3.1 Recommendation.— *The following should be adopted for tests of visual acuity:*

- a) *Visual acuity tests should be conducted in an environment with a level of illumination that corresponds to ordinary office illumination (30-60 cd/m²).*
- b) *Visual acuity should be measured by means of a series of Landolt rings or similar optotypes, placed at a distance from the applicant appropriate to the method of testing adopted.*

6.2.4 Colour perception requirements

Contracting States shall use such methods of examination as will guarantee reliable testing of colour perception.

6.2.4.1 The applicant shall be required to demonstrate the ability to perceive readily those colours the perception of which is necessary for the safe performance of duties.

6.2.4.2 The applicant shall be tested for the ability to correctly identify a series of pseudoisochromatic plates in daylight or in artificial light of the same colour temperature such as that provided by CIE standard illuminants C or D₆₅ as specified by the International Commission on Illumination (CIE).

6.2.4.3 An applicant obtaining a satisfactory result as prescribed by the Licensing Authority shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit unless able to readily distinguish the colours used in air navigation and correctly identify aviation coloured lights. Applicants who fail to meet these criteria shall be assessed as unfit except for Class 2 assessment with the following restriction: valid daytime only.

Note.— *Guidance on suitable methods of assessing colour vision is contained in the Manual of Civil Aviation Medicine (Doc 8984).*

6.2.4.3.1 Recommendation.— *Sunglasses worn during the exercise of the privileges of the licence or rating held should be non-polarizing and of a neutral grey tint.*

6.2.5 Hearing requirements

Hearing requirements are established in addition to the ear examinations conducted during the medical examination for the physical and mental requirements.

6.2.5.1 The applicant shall be required to be free from any hearing defect which would interfere with the safe performance of duties in exercising the privileges of the licence.

Note 1.— *The reference zero for calibration of pure-tone audiometers used for applying 6.3.4.1 and 6.5.4.1 is that of the International Organization for Standardization (ISO) Recommendation R389, 1964.*

Note 2.— *The frequency composition of the background noise referred to in 6.3.4.1 a) and 6.5.4.1 a) is defined only to the extent that the frequency range 600 to 4 800 Hz is adequately represented.*

Note 3.— *In the choice of speech material, aviation-type material is not to be used exclusively for the above tests. Lists of phonetically balanced words in use by a number of Contracting States have given satisfactory results.*

Note 4.— *A quiet room for the purposes of testing the hearing requirements is a room in which the intensity of the background noise is less than 50 dB when measured on “slow” response of an “A”-weighted sound level meter.*

Note 5.— *For the purposes of hearing requirements, the sound level of an average conversational voice at point of output ranges from 85 to 95 dB.*

6.3 Class 1 Medical Assessment

6.3.1 Assessment issue and renewal

6.3.1.1 An applicant for a commercial pilot licence — aeroplane or helicopter, an airline transport pilot licence — aeroplane or helicopter, a flight engineer licence or a flight navigator licence, shall undergo an initial medical examination for the issue of a Class 1 Medical Assessment.

6.3.1.2 Except where otherwise stated in this section, holders of commercial pilot licences — aeroplane or helicopter,

airline transport pilot licences — aeroplane or helicopter, flight engineer licences or flight navigator licences, shall have their Class 1 Medical Assessments renewed at intervals not exceeding those specified in 1.2.5.2.

6.3.1.3 When the Licensing Authority is satisfied that the requirements of this section and the general provisions of 6.1 and 6.2 have been met, a Class 1 Medical Assessment shall be issued to the applicant.

6.3.2 Physical and mental requirements

The medical examination shall be based on the following requirements.

6.3.2.1 The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable either to operate an aircraft safely or to perform assigned duties safely.

6.3.2.2 The applicant shall have no established medical history or clinical diagnosis of:

- a) a psychosis;
- b) alcoholism;
- c) drug dependence;
- d) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
- e) a mental abnormality, or neurosis of a significant degree;

such as might render the applicant unable to safely exercise the privileges of the licence applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licence applied for is not likely to jeopardize flight safety.

6.3.2.2.1 **Recommendation.**— *The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which, according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licence or rating applied for or held.*

Note.— *A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.*

6.3.2.3 The applicant shall have no established medical history or clinical diagnosis of any of the following:

- a) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited

medical conclusion, are likely to interfere with the safe exercise of the applicant's licence and rating privileges;

b) epilepsy;

c) any disturbance of consciousness without satisfactory medical explanation of cause.

6.3.2.4 Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.3.2.5 The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. A history of proven myocardial infarction shall be disqualifying.

Note.— *Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.*

6.3.2.5.1 Electrocardiography shall form part of the heart examination for the first issue of a licence and shall be included in re-examinations of applicants between the ages of 30 and 40 no less frequently than every two years, and thereafter no less frequently than annually.

Note 1.— *The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.*

Note 2.— *Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).*

6.3.2.6 The systolic and diastolic blood pressures shall be within normal limits.

Note 1.— *The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion, is compatible with the safe exercise of the applicant's licence and rating privileges.*

Note 2.— *Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).*

6.3.2.7 There shall be no significant functional nor structural abnormality of the circulatory tree.

6.3.2.8 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

6.3.2.8.1 **Recommendation.**— *Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.*

6.3.2.9 Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be assessed as unfit.

6.3.2.10 **Recommendation.**— *Cases of pulmonary emphysema should be assessed as unfit if the condition is causing symptoms.*

6.3.2.11 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note 1.— Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— Guidance material on hazards of medications is published in the Manual of Civil Aviation Medicine (Doc 8984).

6.3.2.12 Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.

6.3.2.13 The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.

6.3.2.14 Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, likely to cause incapacity in flight, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.3.2.14.1 **Recommendation.**— *An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.*

6.3.2.15 Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.3.2.16 Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit.

6.3.2.17 Cases of severe and moderate enlargement of the spleen persistently below the costal margin shall be assessed as unfit.

6.3.2.18 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licence and rating privileges.

6.3.2.18.1 **Recommendation.**— *Possession of the sickle cell trait should not be a reason for disqualification unless there is positive medical evidence to the contrary.*

6.3.2.18.2 **Recommendation.**— *Cases in 6.3.2.18 due to a transient condition should be assessed as only temporarily unfit.*

6.3.2.19 Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

6.3.2.20 Any sequelae of disease or surgical procedures on the kidneys and the urinary tract likely to cause incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.3.2.20.1 **Recommendation.**— *An applicant who has undergone a major surgical operation on the urinary system which has involved a total or partial excision or a diversion of any of its organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.*

6.3.2.21 An applicant for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that the applicant has undergone adequate treatment.

6.3.2.22 Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.3.2.22.1 **Recommendation.**— *Applicants who have undergone gynaecological operations should be considered individually.*

6.3.2.23 Pregnancy shall be a cause of temporary unfitness.

6.3.2.23.1 **Recommendation.**— *In the absence of significant abnormalities, accredited medical conclusion may indicate fitness during the middle months of pregnancy.*

6.3.2.24 Following confinement or termination of pregnancy, the applicant shall not be permitted to exercise the privileges of her licence until she has undergone re-examination and has been assessed as fit.

6.3.2.25 Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicant's licence and rating privileges may be assessed as fit.

6.3.2.26 There shall be:

- a) no active pathological process, acute or chronic, of the internal ear or of the middle ear;
- b) no unhealed (unclosed) perforation of the tympanic membranes. A single dry perforation need not render the applicant unfit. Licences shall not be issued or renewed in these circumstances unless the appropriate hearing requirements in 6.3.4 are complied with;
- c) no permanent obstruction of the Eustachian tubes;
- d) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.— The details of the hearing requirements are set out in 6.3.4.

6.3.2.27 There shall be free nasal air entry on both sides. There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Cases of speech defects and stuttering shall be assessed as unfit.

6.3.3 Visual requirements

The medical examination shall be based on the following requirements.

6.3.3.1 The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licence and rating privileges.

6.3.3.2 Distant visual acuity with or without correction shall be 6/9 or better in each eye separately, and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

- a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and
- b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.

Note 1.— 6.3.3.2 b) is the subject of Standards in Annex 6, Part I.

Note 2.— An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Licensing Authority. Both uncorrected and corrected visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

6.3.3.2.1 Applicants may use contact lenses to meet this requirement provided that:

- a) the lenses are monofocal and non-tinted;
- b) the lenses are well tolerated; and
- c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence privileges.

Note.— Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

6.3.3.2.2 Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note.— If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

6.3.3.2.3 Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 shall be required to provide a full ophthalmic report prior to initial Medical Assessment and every five years thereafter.

Note 1.— The purpose of the required ophthalmic examination is (1) to ascertain normal visual performance, and (2) to identify any significant pathology.

Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the Manual of Civil Aviation Medicine (Doc 8984).

6.3.3.3 Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.

6.3.3.4 The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by 6.3.3.2, the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm and the ability to read the N14 chart or its equivalent at a distance of 100 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near correction is added to the spectacle correction already prescribed in accordance with 6.3.3.2; if no such correction is prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1.— N5 and N14 refer to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— An applicant who needs near correction to meet this requirement will require “look-over”, bifocal or perhaps multifocal lenses in order to read the instruments and a chart or manual held in the hand, and also to make use of distant vision, through the windscreen, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) significantly reduces distant visual acuity and is therefore not acceptable.

Note 3.— Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function.

6.3.3.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

6.3.3.5 The applicant shall be required to have normal fields of vision.

6.3.3.6 The applicant shall be required to have normal binocular function.

Note.— Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.

6.3.4 Hearing requirements

The medical examination shall be based on the following requirements.

6.3.4.1 The applicant, tested on a pure-tone audiometer at first issue of licence, not less than once every five years up to the age of 40 years, and thereafter not less than once every three years, shall not have a hearing loss, in either ear

separately, of more than 35 dB at any of the frequencies 500, 1 000 or 2 000 Hz, or more than 50 dB at 3 000 Hz. However, an applicant with a hearing loss greater than the above may be declared fit provided that:

- a) the applicant has a hearing performance in each ear separately equivalent to that of a normal person, against a background noise that will simulate the masking properties of flight deck noise upon speech and beacon signals; and
- b) the applicant has the ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

6.3.4.1.1 Alternatively, other methods providing equivalent results to those specified in 6.3.4.1 shall be used.

6.4 Class 2 Medical Assessment

6.4.1 Assessment issue and renewal

6.4.1.1 An applicant for a private pilot licence — aeroplane or helicopter, a glider pilot licence or a free balloon pilot licence shall undergo an initial medical examination for the issue of a Class 2 Medical Assessment.

6.4.1.2 Except where otherwise stated in this section, holders of private pilot licences — aeroplane or helicopter, glider pilot licences or free balloon pilot licences, shall have their Class 2 Medical Assessments renewed at intervals not exceeding those specified in 1.2.5.2.

6.4.1.3 When the Licensing Authority is satisfied that the requirements of this section and the general provisions of 6.1 and 6.2 have been met, a Class 2 Medical Assessment shall be issued to the applicant.

6.4.2 Physical and mental requirements

The medical examination shall be based on the following requirements.

6.4.2.1 The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable either to operate an aircraft safely or to perform assigned duties safely.

6.4.2.2 The applicant shall have no established medical history or clinical diagnosis of:

- a) a psychosis;
- b) alcoholism;

- c) drug dependence;
- d) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
- e) a mental abnormality, or neurosis of a significant degree;

such as might render the applicant unable to safely exercise the privileges of the licence applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licence applied for is not likely to jeopardize flight safety.

6.4.2.2.1 Recommendation.— *The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which, according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licence or rating applied for or held.*

Note.— *A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.*

6.4.2.3 The applicant shall have no established medical history or clinical diagnosis of any of the following:

- a) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licence and rating privileges;
- b) epilepsy;
- c) any disturbance of consciousness without satisfactory medical explanation of cause.

6.4.2.4 Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.4.2.5 The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence and rating privileges. A history of proven myocardial infarction shall be disqualifying.

Note.— *Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.*

6.4.2.5.1 Recommendation.— *Electrocardiography should form part of the heart examination for the first issue of a*

licence, at the first re-examination after the age of 40 and thereafter no less frequently than every five years, and in re-examinations in all doubtful cases.

Note 1.— *The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.*

Note 2.— *Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).*

6.4.2.6 The systolic and diastolic blood pressures shall be within normal limits.

Note 1.— *The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion, is compatible with the safe exercise of the applicant's licence and rating privileges.*

Note 2.— *Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).*

6.4.2.7 There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.

6.4.2.8 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

6.4.2.8.1 Recommendation.— *Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.*

6.4.2.9 Any extensive mutilation of the chest wall with collapse of the thoracic cage and sequelae of surgical procedures resulting in decreased respiratory efficiency at altitude shall be assessed as unfit.

6.4.2.10 Recommendation.— *Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.*

6.4.2.11 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note 1.— *Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).*

Note 2.— *Guidance material on hazards of medications is published in the Manual of Civil Aviation Medicine (Doc 8984).*

6.4.2.12 Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.

6.4.2.13 The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.

6.4.2.14 Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, likely to cause incapacity in flight, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.4.2.14.1 **Recommendation.**— *An applicant who has undergone a major surgical operation on the biliary passages or the digestive tract or its adnexae, which has involved a total or partial excision or a diversion of any of these organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.*

6.4.2.15 Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.4.2.16 Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit. The use of anti-diabetic drugs for the control of diabetes mellitus is disqualifying except for those oral drugs administered under conditions permitting appropriate medical supervision and control and which, according to accredited medical conclusion, are compatible with the safe exercise of the applicant's licence and rating privileges.

6.4.2.17 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licence and rating privileges.

6.4.2.17.1 **Recommendation.**— *Possession of the sickle cell trait should not be a reason for disqualification unless there is positive medical evidence to the contrary.*

6.4.2.17.2 **Recommendation.**— *Cases in 6.4.2.17 due to a transient condition should be assessed as only temporarily unfit.*

6.4.2.18 Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of

the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

6.4.2.19 Any sequelae of disease or surgical procedures on the kidneys and the urinary tract likely to cause incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.4.2.19.1 **Recommendation.**— *An applicant who has undergone a major surgical operation on the urinary system which has involved a total or partial excision or a diversion of any of its organs should be assessed as unfit until such time as the medical authority designated for the purpose by the Contracting State and having access to the details of the operation concerned considers that the effects of the operation are not likely to cause incapacity in the air.*

6.4.2.20 An applicant for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that the applicant has undergone adequate treatment.

6.4.2.21 Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licence and rating privileges shall be assessed as unfit.

6.4.2.21.1 **Recommendation.**— *Applicants who have undergone gynaecological operations should be considered individually.*

6.4.2.22 Pregnancy shall be a cause of temporary unfitness.

6.4.2.22.1 **Recommendation.**— *In the absence of any significant abnormalities, accredited medical conclusion may indicate fitness during the middle months of pregnancy.*

6.4.2.23 Following confinement or termination of pregnancy, the applicant shall not be permitted to exercise the privileges of her licence until she has undergone re-examination and has been assessed as fit.

6.4.2.24 Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or acquired disease shall be assessed as unfit. Certain qualifying functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicant's licence and rating privileges may be assessed as fit.

6.4.2.25 There shall be:

- a) no active pathological process, acute or chronic, of the internal ear or of the middle ear;

- b) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.— The details of the hearing requirements are set out in 6.4.4.

6.4.2.26 There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract.

6.4.3 Visual requirements

The medical examination shall be based on the following requirements.

6.4.3.1 The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licence and rating privileges.

6.4.3.2 Distant visual acuity with or without correction shall be 6/12 or better in each eye separately, and binocular visual acuity shall be 6/9 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

- a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and
- b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.

Note.— An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Licensing Authority. Both uncorrected and corrected visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

6.4.3.2.1 Applicants may use contact lenses to meet this requirement provided that:

- a) the lenses are monofocal and non-tinted;
- b) the lenses are well tolerated; and
- c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence privileges.

Note.— Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

6.4.3.2.2 Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note.— If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

6.4.3.2.3 **Recommendation.**— Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 should be required to provide a full ophthalmic report prior to initial Medical Assessment and every five years thereafter.

Note 1.— The purpose of the required ophthalmic examination is (1) to ascertain normal visual performance, and (2) to identify any significant pathology.

Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the Manual of Civil Aviation Medicine (Doc 8984).

6.4.3.3 Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.

6.4.3.4 The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by 6.4.3.2, the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near correction is added to the spectacle correction already prescribed in accordance with 6.4.3.2; if no such correction is prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1.— N5 refers to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— An applicant who needs near correction to meet the requirement will require "look-over", bifocal or perhaps multifocal lenses in order to read the instruments and a chart or manual held in the hand, and also to make use of distant vision, through the windscreen, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) significantly reduces distant visual acuity and is therefore not acceptable.

Note 3.— Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of the reading distances for the visual flight deck tasks relevant to the types of aircraft in which the applicant is likely to function.

6.4.3.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

6.4.3.5 The applicant shall be required to have normal fields of vision.

6.4.3.6 The applicant shall be required to have normal binocular function.

Note.— Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.

6.4.4 Hearing requirements

The medical examination shall be based on the following requirements.

6.4.4.1 The applicant shall be able to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

6.5 Class 3 Medical Assessment

6.5.1 Assessment issue and renewal

6.5.1.1 An applicant for an air traffic controller licence shall undergo an initial medical examination for the issue of a Class 3 Medical Assessment.

6.5.1.2 Except where otherwise stated in this section, holders of air traffic controller licences shall have their Class 3 Medical Assessments renewed at intervals not exceeding those specified in 1.2.5.2.

6.5.1.3 When the Licensing Authority is satisfied that the requirements of this section and the general provisions of 6.1 and 6.2 have been met, a Class 3 Medical Assessment shall be issued to the applicant.

6.5.2 Physical and mental requirements

The medical examination shall be based on the following requirements.

6.5.2.1 The applicant shall not suffer from any disease or disability which could render that applicant likely to become suddenly unable to perform duties safely.

6.5.2.2 The applicant shall have no established medical history or clinical diagnosis of:

- a) a psychosis;
- b) alcoholism;
- c) drug dependence;
- d) any personality disorder, particularly if severe enough to have repeatedly resulted in overt acts;
- e) a mental abnormality, or neurosis of a significant degree;

such as might render the applicant unable to safely exercise the privileges of the licence applied for or held, unless accredited medical conclusion indicates that in special circumstances, the applicant's failure to meet the requirement is such that exercise of the privileges of the licence applied for is not likely to jeopardize flight safety.

6.5.2.2.1 **Recommendation.**— *The applicant should have no established medical history or clinical diagnosis of any mental abnormality, personality disorder or neurosis which, according to accredited medical conclusion, makes it likely that within two years of the examination the applicant will be unable to safely exercise the privileges of the licence or rating applied for or held.*

Note.— A history of acute toxic psychosis need not be regarded as disqualifying, provided that the applicant has suffered no permanent impairment.

6.5.2.3 The applicant shall have no established medical history or clinical diagnosis of any of the following:

- a) a progressive or non-progressive disease of the nervous system, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licence and rating privileges;
- b) epilepsy;
- c) any disturbance of consciousness without satisfactory medical explanation of cause.

6.5.2.4 Cases of head injury, the effects of which, according to accredited medical conclusion, are likely to interfere with the safe exercise of the applicant's licence privileges shall be assessed as unfit.

6.5.2.5 The applicant shall not possess any abnormality of the heart, congenital or acquired, which is likely to interfere with the safe exercise of the applicant's licence privileges. An applicant indicated by accredited medical conclusion to have made a satisfactory recovery from myocardial infarction may be assessed as fit.

Note.— Such commonly occurring conditions as respiratory arrhythmia, occasional extrasystoles which disappear on exercise, increase of pulse rate from excitement or exercise, or a slow pulse not associated with auriculoventricular dissociation may be regarded as being within "normal" limits.

6.5.2.5.1 Recommendation.— *Electrocardiography should form part of the heart examination for the first issue of a licence, at the first re-examination after the age of 40 and thereafter no less frequently than every five years, and in re-examinations in all doubtful cases.*

Note 1.— The purpose of routine electrocardiography is case finding. It does not provide sufficient evidence to justify disqualification without further thorough cardiovascular investigation.

Note 2.— Guidance on resting and exercise electrocardiography is published in the Manual of Civil Aviation Medicine (Doc 8984).

6.5.2.6 The systolic and diastolic blood pressures shall be within normal limits.

Note 1.— The use of drugs for control of high blood pressure is disqualifying except for those drugs, the use of which, according to accredited medical conclusion, is compatible with the safe exercise of the applicant's licence privileges.

Note 2.— Extensive guidance on the subject is published in the Manual of Civil Aviation Medicine (Doc 8984).

6.5.2.7 There shall be no significant functional nor structural abnormality of the circulatory tree. The presence of varicosities does not necessarily entail unfitness.

6.5.2.8 There shall be no acute disability of the lungs nor any active disease of the structures of the lungs, mediastinum or pleura. Radiography shall form a part of the medical examination in all doubtful clinical cases.

6.5.2.8.1 Recommendation.— *Radiography should form a part of the initial chest examination and should be repeated periodically thereafter.*

6.5.2.9 Recommendation.— *Cases of pulmonary emphysema should be assessed as unfit only if the condition is causing symptoms.*

6.5.2.10 Cases of active pulmonary tuberculosis, duly diagnosed, shall be assessed as unfit. Cases of quiescent or healed lesions which are known to be tuberculous, or are presumably tuberculous in origin, may be assessed as fit.

Note 1.— Guidance material on assessment of respiratory diseases is published in the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— Guidance material on hazards of medications is published in the Manual of Civil Aviation Medicine (Doc 8984).

6.5.2.11 Cases of disabling disease with important impairment of function of the gastrointestinal tract or its adnexae shall be assessed as unfit.

6.5.2.12 The applicant shall be required to be completely free from those hernias that might give rise to incapacitating symptoms.

6.5.2.13 Any sequelae of disease or surgical intervention on any part of the digestive tract or its adnexae, liable to cause incapacity, in particular any obstructions due to stricture or compression shall be assessed as unfit.

6.5.2.14 Cases of metabolic, nutritional or endocrine disorders likely to interfere with the safe exercise of the applicant's licence privileges shall be assessed as unfit.

6.5.2.15 Proven cases of diabetes mellitus shown to be satisfactorily controlled without the use of any anti-diabetic drug, may be assessed as fit. The use of anti-diabetic drugs for the control of diabetes mellitus is disqualifying except for those oral drugs administered under conditions permitting appropriate medical supervision and control and which, according to accredited medical conclusion, are compatible with the safe exercise of the applicant's licence privileges.

6.5.2.16 Cases of significant localized and generalized enlargement of the lymphatic glands and of diseases of the blood shall be assessed as unfit, except in cases where accredited medical conclusion indicates that the condition is not likely to affect the safe exercise of the applicant's licence privileges.

6.5.2.16.1 Recommendation.— *Cases in 6.5.2.16 due to a transient condition should be assessed as only temporarily unfit.*

6.5.2.17 Cases presenting any signs of organic disease of the kidney shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit. The urine shall contain no abnormal element considered by the medical examiner to be of pathological significance. Cases of affections of the urinary passages and of the genital organs shall be assessed as unfit; those due to a transient condition may be assessed as temporarily unfit.

6.5.2.18 Any sequelae of disease or surgical procedures on the kidneys and the urinary tract liable to cause incapacity, in particular any obstructions due to stricture or compression, shall be assessed as unfit. Compensated nephrectomy without hypertension or uraemia may be assessed as fit.

6.5.2.19 An applicant for the first issue of a licence who has a personal history of syphilis shall be required to furnish evidence, satisfactory to the medical examiner, that the applicant has undergone adequate treatment.

6.5.2.20 Applicants who have a history of severe menstrual disturbances that have proved unamenable to treatment and that are likely to interfere with the safe exercise of the applicant's licence privileges shall be assessed as unfit.

6.5.2.21 Any active disease of the bones, joints, muscles or tendons and all serious functional sequelae of congenital or

acquired disease shall be assessed as unfit. Functional after-effects of lesion affecting the bones, joints, muscles or tendons and certain anatomical defects compatible with the safe exercise of the applicant's licence privileges may be assessed as fit.

6.5.2.22 There shall be:

- a) no active pathological process, acute or chronic, of the internal ear or of the middle ear;
- b) no permanent disturbances of the vestibular apparatus. Transient conditions may be assessed as temporarily unfit.

Note.— The details of the hearing requirements are set out in 6.5.4.

6.5.2.23 There shall be no serious malformation nor serious, acute or chronic affection of the buccal cavity or upper respiratory tract. Cases of speech defects and stuttering shall be assessed as unfit.

6.5.3 Visual requirements

The medical examination shall be based on the following requirements.

6.5.3.1 The function of the eyes and their adnexa shall be normal. There shall be no active pathological condition, acute or chronic, nor any sequelae of surgery or trauma of the eyes or their adnexa likely to reduce proper visual function to an extent that would interfere with the safe exercise of the applicant's licence and rating privileges.

6.5.3.2 Distant visual acuity with or without correction shall be 6/9 or better in each eye separately, and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity. Where this standard of visual acuity can be obtained only with correcting lenses, the applicant may be assessed as fit provided that:

- a) such correcting lenses are worn during the exercise of the privileges of the licence or rating applied for or held; and
- b) in addition, a pair of suitable correcting spectacles is kept readily available during the exercise of the privileges of the applicant's licence.

Note.— An applicant accepted as meeting these provisions is deemed to continue to do so unless there is reason to suspect otherwise, in which case an ophthalmic report is required at the discretion of the Licensing Authority. Both uncorrected and corrected visual acuity are normally measured and recorded at each re-examination. Conditions which indicate a need to obtain an ophthalmic report include: a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity, and the occurrence of eye disease, eye injury or eye surgery.

6.5.3.2.1 Applicants may use contact lenses to meet this requirement provided that:

- a) the lenses are monofocal and non-tinted;
- b) the lenses are well tolerated; and
- c) a pair of suitable correcting spectacles is kept readily available during the exercise of the licence privileges.

Note.— Applicants who use contact lenses may not need to have their uncorrected visual acuity measured at each re-examination provided the history of their contact lens prescription is known.

6.5.3.2.2 Applicants with a large refractive error shall use contact lenses or high-index spectacle lenses.

Note.— If spectacles are used, high-index lenses are needed to minimize peripheral field distortion.

6.5.3.2.3 Applicants whose uncorrected distant visual acuity in either eye is worse than 6/60 shall be required to provide a full ophthalmic report prior to initial Medical Assessment and every five years thereafter.

Note 1.— The purpose of the required ophthalmic examination is (1) to ascertain normal vision performance, and (2) to identify any significant pathology.

Note 2.— Guidance on the assessment of monocular applicants under the provisions of 1.2.4.8 is contained in the Manual of Civil Aviation Medicine (Doc 8984).

6.5.3.3 Applicants who have undergone surgery affecting the refractive status of the eye shall be assessed as unfit unless they are free from those sequelae which are likely to interfere with the safe exercise of their licence and rating privileges.

6.5.3.4 The applicant shall have the ability to read, while wearing the correcting lenses, if any, required by 6.5.3.2, the N5 chart or its equivalent at a distance selected by that applicant in the range of 30 to 50 cm and the ability to read the N14 chart or its equivalent at a distance of 100 cm. If this requirement is met only by the use of near correction, the applicant may be assessed as fit provided that this near correction is added to the spectacle correction already prescribed in accordance with 6.5.3.2; if no such correction is prescribed, a pair of spectacles for near use shall be kept readily available during the exercise of the privileges of the licence. When near correction is required, the applicant shall demonstrate that one pair of spectacles is sufficient to meet both distant and near visual requirements.

Note 1.— N5 and N14 refer to the size of typeface used. For further details, see the Manual of Civil Aviation Medicine (Doc 8984).

Note 2.— An applicant who needs near correction to meet the requirement will require "look-over", bifocal or perhaps multi-focal lenses in order to read radar screens, visual

displays and written or printed material and also to make use of distant vision, through the windows, without removing the lenses. Single-vision near correction (full lenses of one power only, appropriate for reading) may be acceptable for certain air traffic control duties. However, it should be realized that single-vision near correction significantly reduces distant visual acuity.

Note 3.— Whenever there is a requirement to obtain or renew correcting lenses, an applicant is expected to advise the refractionist of reading distances for the air traffic control duties the applicant is likely to perform.

6.5.3.4.1 When near correction is required in accordance with this paragraph, a second pair of near-correction spectacles shall be kept available for immediate use.

6.5.3.5 The applicant shall be required to have normal fields of vision.

6.5.3.6 The applicant shall be required to have normal binocular function.

Note.— Defective stereopsis, abnormal convergence not interfering with near vision, and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may not be disqualifying.

6.5.4 Hearing requirements

The medical examination shall be based on the following requirements.

6.5.4.1 The applicant, tested on a pure-tone audiometer at first issue of licence, not less than once every five years up to the age of 40 years, and thereafter not less than once every three years, shall not have a hearing loss, in either ear separately, of more than 35 dB at any of the frequencies 500, 1 000 or 2 000 Hz, or more than 50 dB at 3 000 Hz. However, an applicant with a hearing loss greater than the above may be declared fit provided that:

- a) the applicant has a hearing performance in each ear separately equivalent to that of a normal person, against a background noise that will simulate that experienced in a typical air traffic control working environment; and
- b) the applicant has the ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 2 m from the examiner, with the back turned to the examiner.

6.5.4.1.1 Alternatively, other methods providing equivalent results to those specified in 6.5.4.1 shall be used.

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